

PROJECT MEMORANDUM

FILE COPY

DATE: December 22, 1992
TO: Joe Depner, Hydrogeologist
FROM: Nels Cone, Chemist
SUBJECT: DATA VALIDATION OF ANALYTICAL RESULTS FROM PIER 91 RCRA FACILITY INVESTIGATION, PROJECT 624878, DATA SET #5A

Between September 23 and October 5, 1992, soil samples were collected by Burlington Environmental Inc. (Burlington). These samples were submitted to Sound Analytical Services of Tacoma, Washington for semivolatile compound (EPA SW-846 Method 8270) and Total Petroleum Hydrocarbon (EPA SW-846 Methods 418.1 and 8015) analyses. I performed a review of the analytical results on the following samples:

CP-HA-4-1.5-2	CP-HA-4-3-3.5	CP-116-2-4	CP-116-2-2.5	CP-117-6-8
CP-117-2-4	CP-118-2-4	CP-118-6-8	CP-119-2-4	CP-119-6-8

Properly completed chain-of-custody forms were included, along with documented signatures from field to laboratory receipt. The samples were shown as having been properly iced and received in good condition. Holding times were clearly written and evaluated according to regulatory protocol (*National Functional Guidelines for Organic Data Review*, USEPA, 1990). The samples received the requested analyses, and laboratory extraction/analysis times met the established guidelines.

Duplicate analyses were performed as required by the Quality Assurance Project Plan (QAPP). Relative percent differences between individual results indicate detection comparability, although not all met within required quality control (QC) guidelines. Method blank analyses displayed surrogate spike recoveries well within required QC limits, and no blank corrections were required.

Analytical results indicate elevated levels of hydrocarbon compounds requiring dilution in all samples tested. As a result, elevated detection limits were reported, and several sample surrogate recoveries were outside normal QC limits, as were recoveries for several matrix spike/matrix spike duplicate analyses. The samples were diluted to ensure that target analytes were within the instrument calibration range with the exception of total petroleum fuel hydrocarbons analysis (Method 8015) for sample CP-116-2-4. In this sample, contaminating hydrocarbons were not identified as matching the elution pattern for any single product, and the total concentration clearly exceeded the calibration range.

Page 2

Project Memorandum from Nels Cone

Subject: Data Validation, Pier 91, Data Set #5A

December 22, 1992

As a further consequence of the required dilution, results from the semivolatile analyses were found to be below the practical quantitation limits for several detected compounds. Supporting documentation for these analyses included instrument calibration/tuning data, and chromatographic/mass spectral data. As a result of high background contained in the mass spectral data, the computerized data handling system of the Hewlett-Packard ITS40 instrument was exclusively relied upon for compound match interpretation. The remaining supporting documentation easily demonstrated data consistency.

Proper data qualifier flags accompanied the analytical results as needed, with the exception of di-n-butylphthalate found in samples CP-117-2-4, CP-117-6-8, CP-119-2-4, and CP-HA-4-3-3.5. Since this analyte was also found in the laboratory method blank, these samples should be flagged as containing possible laboratory contamination. Regardless, the data quality objectives as defined in Table F-2 of the QAPP are met. Accordingly, this data set can be considered valid for its intended use.

SOUND ANALYTICAL SERVICES, INC.

RECEIVED

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

NOV 25 1992

Burlington Environmental Inc.
Technical Services

11/17/92

To: Burlington Environmental Engineering

PROJECT NUMBER: 624878

PROJECT NAME: PIER 91

LABORATORY WORK ORDER NUMBER: 27358

Samples were taken on 9/23/92-9/24/92, and received at Sound on 9/25/92. They were analyzed for Semivolatile Organics by EPA method 8270, Total Petroleum Hydrocarbons by EPA method 418.1 modified for soil, and Total Petroleum Fuel Hydrocarbons using EPA method 8015 modified.

SEMIVOLATILE ORGANICS-

Samples -1, -2, and -3 were analyzed for Semivolatile organics. Samples were extracted on 9/28/92, and were analyzed on 10/12/92, both within holding times. No blank contamination was found above the PQL's, although trace levels of Diethylphthalate, Di-n-butylphthalate, Bis(2-ethylhexyl)phthalate, and Di-n-octylphthalate were found. Relative percent differences on Naphthalene, Acenaphthene, Dibenzofuran, Fluorene, N-Nitrosodiphenylamine, Phenanthrene, Anthracene, Di-n-butylphthalate, Fluoranthene, Pyrene, and Chrysene were outside quality control limits, due to levels below the PQL for the sample. Percent recovery data for the matrix spike and matrix spike duplicate exceeded quality control limits for 2,4-dinitrotoluene. Relative percent differences for 1,2,4-Trichlorobenzene, Phenol, and 4-Chloro-3-Methylphenol exceeded quality control limits. All other QC parameters were within acceptable limits.

TOTAL PETROLEUM HYDROCARBONS-

Samples -1, -2, and -3 were analyzed for Total Petroleum Hydrocarbons using WTPH-418.1. The samples were extracted and analyzed on 9/29/92, both within applicable holding times. The percent recovery for the matrix spike and matrix spike duplicate were outside quality control limits, with the spike being diluted out prior to analysis. No contamination was detected in the blank, and all other quality control parameters were within acceptance limits.

TOTAL PETROLEUM FUEL HYDROCARBONS-

Samples -1, -2 and -3 were analyzed for Total Petroleum Fuel Hydrocarbons using EPA method 8015 modified. The samples were extracted on 9/28/92, and analyzed on 10/8/92, both within holding times. The surrogate recoveries on -1, -2,

SOUND ANALYTICAL SERVICES, INC.

and -3 exceeded quality control limits due to matrix interference. The product type in -1, -2, and -3 extended over both the diesel and heavier component ranges, and was flagged to note multi component contamination. The percent recovery of the matrix spike and matrix spike duplicate was exceeded quality control limits, due to sample dilution prior to analysis. All other quality control parameters were within acceptance limits.

All results were dry weight corrected.

No blank correction was used.

Data qualifier flags are included in the quality control package.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Burlington Environmental
Engineering

Date: October 16, 1992

Report On: Analysis of Soil

Lab No.: 27358

Page 1 of 12

IDENTIFICATION:

Samples Received on 09-24-92

Project: 624878 Pier 91

ANALYSIS:

Lab No. 27358-1

Client ID: CP-116-2-2.5

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 9-28-92

Date Analyzed: 10-12-92

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
108-95-2	Phenol	ND	10,000	
111-44-4	bis(2-Chloroethyl) ether	ND	10,000	
95-57-8	2-Chlorophenol	ND	10,000	
541-73-1	1,3-Dichlorobenzene	ND	10,000	
106-46-7	1,4-Dichlorobenzene	ND	10,000	
100-51-6	Benzyl Alcohol	ND	20,000	
95-50-1	1,2-Dichlorobenzene	ND	10,000	
95-48-7	2-Methylphenol	ND	10,000	
39638-32-9	bis(2-Chloroisopropyl) ether	ND	10,000	
106-44-5	4-Methylphenol	ND	10,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	10,000	
67-72-1	Hexachloroethane	ND	10,000	
98-95-3	Nitrobenzene	ND	10,000	
78-59-1	Isophorone	ND	10,000	
88-75-5	2-Nitrophenol	ND	10,000	
105-67-9	2,4-Dimethylphenol	ND	10,000	
65-85-0	Benzoic Acid	ND	50,000	
111-91-1	bis(2-Chloroethoxy)methane	ND	10,000	
120-83-2	2,4-Dichlorophenol	ND	10,000	
120-82-1	1,2,4-Trichlorobenzene	ND	10,000	
91-20-3	Naphthalene	12,000	10,000	
106-47-8	4-Chloroaniline	ND	20,000	
87-68-3	Hexachlorobutadiene	ND	10,000	
59-50-7	4-Chloro-3-methylphenol	ND	20,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 2 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-1

Client ID: CP-116-2-2.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
91-57-6	2-Methylnaphthalene	58,000	10,000	
77-47-4	Hexachlorocyclopentadiene	ND	10,000	
88-06-2	2,4,6-Trichlorophenol	ND	10,000	
95-95-4	2,4,5-Trichlorophenol	ND	10,000	
91-58-7	2-Chloronaphthalene	ND	10,000	
88-74-4	2-Nitroaniline	ND	50,000	
131-11-3	Dimethyl phthalate	ND	10,000	
208-96-8	Acenaphthylene	ND	10,000	
606-20-2	2,6-Dinitrotoluene	ND	10,000	
99-09-2	3-Nitroaniline	ND	50,000	
83-32-9	Acenaphthene	2,300	10,000	
51-28-5	2,4-Dinitrophenol	ND	50,000	
100-02-7	4-Nitrophenol	ND	50,000	
132-64-9	Dibenzofuran	2,600	10,000	J
121-14-2	2,4-Dinitrotoluene	ND	10,000	
84-66-2	Diethylphthalate	ND	10,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	10,000	
86-73-7	Fluorene	6,000	10,000	J
100-01-6	4-Nitroaniline	ND	50,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	50,000	
86-30-6	N-Nitrosodiphenylamine	ND	10,000	
101-55-3	4-Bromophenyl phenyl ether	ND	10,000	
118-74-1	Hexachlorobenzene	ND	10,000	
87-86-5	Pentachlorophenol	ND	50,000	
85-01-8	Phenanthrene	16,000	10,000	J
120-12-7	Anthracene	2,800	10,000	J
84-74-2	Di-n-butylphthalate	31,000	10,000	J

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 3 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-1

Client ID: CP-116-2-2.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
206-44-0	Fluoranthene	2,500	10,000	J
129-00-0	Pyrene	4,500	10,000	J
85-68-7	Butyl benzyl phthalate	1,600	10,000	J
91-94-1	3,3'-Dichlorobenzidine	ND	20,000	
56-55-3	Benzo(a)anthracene	1,300	10,000	J
218-01-9	Chrysene	2,300	10,000	J
117-81-7	bis(2-ethylhexyl)phthalate	9,000	10,000	J
117-84-0	Di-n-octyl phthalate	ND	10,000	
205-99-2	Benzo(b)fluoranthene	ND	10,000	
207-08-9	Benzo(k)fluoranthene	ND	10,000	
50-32-8	Benzo(a)pyrene	1,000	10,000	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10,000	
53-70-3	Dibenz(a,h)anthracene	ND	10,000	
191-24-2	Benzo(g,h,i)perylene	ND	10,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	79	35 - 114	23 - 120
2-Fluorobiphenyl	97	43 - 116	30 - 115
p-Terphenyl-d ₁₄	79	33 - 141	18 - 137
Phenol-d ₆	74	10 - 94	24 - 113
2-Fluorophenol	80	21 - 100	25 - 121
2,4,6-Tribromophenol	84	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 4 of 12
Lab No. 27358
October 16, 1992

Lab No. 27358-1

Client ID: CP-116-2-2.5

TPH Per EPA Method 418.1
Date Extracted: 9-29-92
Date Analyzed: 9-29-92

Total Petroleum Hydrocarbons, mg/kg	38,000
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TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 9-28-92
Date Analyzed: 10-8-92

Total Petroleum Fuel Hydrocarbons, mg/kg	42,000	X2
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TPH as Aged Gas, Diesel, and Heavy Oil

SURROGATE RECOVERY, %

1-chlorooctane	238	X9
o-terphenyl	469	X9

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 5 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-2

Client ID: CP-117-2-4

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 9-30-92

Date Analyzed: 10-10-92

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
108-95-2	Phenol	ND	8,000	
111-44-4	bis(2-Chloroethyl) ether	ND	8,000	
95-57-8	2-Chlorophenol	ND	8,000	
541-73-1	1,3-Dichlorobenzene	ND	8,000	
106-46-7	1,4-Dichlorobenzene	ND	8,000	
100-51-6	Benzyl Alcohol	ND	16,000	
95-50-1	1,2-Dichlorobenzene	ND	8,000	
95-48-7	2-Methylphenol	ND	8,000	
39638-32-9	bis(2-Chloroisopropyl) ether	ND	8,000	
106-44-5	4-Methylphenol	ND	8,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	8,000	
67-72-1	Hexachloroethane	ND	8,000	
98-95-3	Nitrobenzene	ND	8,000	
78-59-1	Isophorone	ND	8,000	
88-75-5	2-Nitrophenol	ND	8,000	
105-67-9	2,4-Dimethylphenol	ND	8,000	
65-85-0	Benzoic Acid	ND	40,000	
111-91-1	bis(2-Chloroethoxy) methane	ND	8,000	
120-83-2	2,4-Dichlorophenol	ND	8,000	
120-82-1	1,2,4-Trichlorobenzene	ND	8,000	
91-20-3	Naphthalene	1,800	8,000	J
106-47-8	4-Chloroaniline	ND	16,000	
87-68-3	Hexachlorobutadiene	ND	8,000	
59-50-7	4-Chloro-3-methylphenol	ND	16,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 6 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-2

Client ID: CP-117-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
91-57-6	2-Methylnaphthalene	14,000	8,000	
77-47-4	Hexachlorocyclopentadiene	ND	8,000	
88-06-2	2,4,6-Trichlorophenol	ND	8,000	
95-95-4	2,4,5-Trichlorophenol	ND	8,000	
91-58-7	2-Chloronaphthalene	ND	8,000	
88-74-4	2-Nitroaniline	ND	40,000	
131-11-3	Dimethyl phthalate	ND	8,000	
208-96-8	Acenaphthylene	ND	8,000	
606-20-2	2,6-Dinitrotoluene	ND	8,000	
99-09-2	3-Nitroaniline	ND	40,000	
83-32-9	Acenaphthene	1,300	8,000	J
51-28-5	2,4-Dinitrophenol	ND	40,000	
100-02-7	4-Nitrophenol	ND	40,000	
132-64-9	Dibenzofuran	1,300	8,000	J
121-14-2	2,4-Dinitrotoluene	ND	8,000	
84-66-2	Diethylphthalate	ND	8,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	8,000	
86-73-7	Fluorene	3,600	8,000	J
100-01-6	4-Nitroaniline	ND	40,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	40,000	
86-30-6	N-Nitrosodiphenylamine	ND	8,000	
101-55-3	4-Bromophenyl phenyl ether	ND	8,000	
118-74-1	Hexachlorobenzene	ND	8,000	
87-86-5	Pentachlorophenol	ND	40,000	
85-01-8	Phenanthrene	11,000	8,000	
120-12-7	Anthracene	1,500	8,000	J
84-74-2	Di-n-butylphthalate	27,000	8,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 7 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-2

Client ID: CP-117-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
206-44-0	Fluoranthene	2,200	8,000	J
129-00-0	Pyrene	5,300	8,000	J
85-68-7	Butyl benzyl phthalate	ND	8,000	
91-94-1	3,3'-Dichlorobenzidine	ND	16,000	
56-55-3	Benzo(a)anthracene	ND	8,000	
218-01-9	Chrysene	2,400	8,000	J
117-81-7	bis(2-ethylhexyl)phthalate	25,000	8,000	
117-84-0	Di-n-octyl phthalate	4,500	8,000	J
205-99-2	Benzo(b)fluoranthene	ND	8,000	
207-08-9	Benzo(k)fluoranthene	ND	8,000	
50-32-8	Benzo(a)pyrene	ND	8,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8,000	
53-70-3	Dibenz(a,h)anthracene	ND	8,000	
191-24-2	Benzo(g,h,i)perylene	ND	8,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	76	35 - 114	23 - 120
2-Fluorobiphenyl	79	43 - 116	30 - 115
p-Terphenyl-d ₁₄	84	33 - 141	18 - 137
Phenol-d ₆	68	10 - 94	24 - 113
2-Fluorophenol	68	21 - 100	25 - 121
2,4,6-Tribromophenol	78	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 8 of 12
Lab No. 27358
October 16, 1992

Lab No. 27358-2

Client ID: CP-117-2-4

TPH Per EPA Method 418.1
Date Extracted: 9-29-92
Date Analyzed: 9-29-92

Total Petroleum Hydrocarbons, mg/kg	36,000
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TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 9-28-92
Date Analyzed: 10-8-92

Total Petroleum Fuel Hydrocarbons, mg/kg	38,000	X2
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TPH as Aged Gas, Diesel, and Heavy Oil

<u>SURROGATE RECOVERY, %</u>		
1-chlorooctane	56	X9
o-terphenyl	239	X9

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 9 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-3

Client ID: CP-117-6-8

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 9-28-92

Date Analyzed: 10-12-92

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
108-95-2	Phenol	ND	10,000	
111-44-4	bis(2-Chloroethyl) ether	ND	10,000	
95-57-8	2-Chlorophenol	ND	10,000	
541-73-1	1,3-Dichlorobenzene	ND	10,000	
106-46-7	1,4-Dichlorobenzene	ND	10,000	
100-51-6	Benzyl Alcohol	ND	20,000	
95-50-1	1,2-Dichlorobenzene	ND	10,000	
95-48-7	2-Methylphenol	ND	10,000	
39638-32-9	bis(2-Chloroisopropyl) ether	ND	10,000	
106-44-5	4-Methylphenol	ND	10,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	10,000	
67-72-1	Hexachloroethane	ND	10,000	
98-95-3	Nitrobenzene	ND	10,000	
78-59-1	Isophorone	ND	10,000	
88-75-5	2-Nitrophenol	ND	10,000	
105-67-9	2,4-Dimethylphenol	ND	10,000	
65-85-0	Benzoic Acid	ND	50,000	
111-91-1	bis(2-Chloroethoxy) methane	ND	10,000	
120-83-2	2,4-Dichlorophenol	ND	10,000	
120-82-1	1,2,4-Trichlorobenzene	ND	10,000	
91-20-3	Naphthalene	5,400	10,000	J
106-47-8	4-Chloroaniline	ND	20,000	
87-68-3	Hexachlorobutadiene	ND	10,000	
59-50-7	4-Chloro-3-methylphenol	ND	20,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 10 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-3

Client ID: CP-117-6-8

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
91-57-6	2-Methylnaphthalene	36,000	10,000	
77-47-4	Hexachlorocyclopentadiene	ND	10,000	
88-06-2	2,4,6-Trichlorophenol	ND	10,000	
95-95-4	2,4,5-Trichlorophenol	ND	10,000	
91-58-7	2-Chloronaphthalene	ND	10,000	
88-74-4	2-Nitroaniline	ND	50,000	
131-11-3	Dimethyl phthalate	ND	10,000	
208-96-8	Acenaphthylene	ND	10,000	
606-20-2	2,6-Dinitrotoluene	ND	10,000	
99-09-2	3-Nitroaniline	ND	50,000	
83-32-9	Acenaphthene	1,700	10,000	J
51-28-5	2,4-Dinitrophenol	ND	50,000	
100-02-7	4-Nitrophenol	ND	50,000	
132-64-9	Dibenzofuran	1,300	10,000	J
121-14-2	2,4-Dinitrotoluene	ND	10,000	
84-66-2	Diethylphthalate	ND	10,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	10,000	
86-73-7	Fluorene	5,800	10,000	J
100-01-6	4-Nitroaniline	ND	50,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	50,000	
86-30-6	N-Nitrosodiphenylamine	ND	10,000	
101-55-3	4-Bromophenyl phenyl ether	ND	10,000	
118-74-1	Hexachlorobenzene	ND	10,000	
87-86-5	Pentachlorophenol	ND	50,000	
85-01-8	Phenanthrene	11,000	10,000	
120-12-7	Anthracene	1,200	10,000	J
84-74-2	Di-n-butylphthalate	26,000	10,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 11 of 12
 Lab No. 27358
 October 16, 1992

Lab No. 27358-3

Client ID: CP-117-6-8

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
206-44-0	Fluoranthene	1,500	10,000	J
129-00-0	Pyrene	3,000	10,000	J
85-68-7	Butyl benzyl phthalate	ND	10,000	
91-94-1	3,3'-Dichlorobenzidine	ND	20,000	
56-55-3	Benzo(a)anthracene	ND	10,000	
218-01-9	Chrysene	ND	10,000	
117-81-7	bis(2-ethylhexyl)phthalate	13,000	10,000	
117-84-0	Di-n-octyl phthalate	ND	10,000	
205-99-2	Benzo(b)fluoranthene	ND	10,000	
207-08-9	Benzo(k)fluoranthene	ND	10,000	
50-32-8	Benzo(a)pyrene	ND	10,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10,000	
53-70-3	Dibenz(a,h)anthracene	ND	10,000	
191-24-2	Benzo(g,h,i)perylene	ND	10,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	59	35 - 114	23 - 120
2-Fluorobiphenyl	66	43 - 116	30 - 115
p-Terphenyl-d ₁₄	66	33 - 141	18 - 137
Phenol-d ₆	54	10 - 94	24 - 113
2-Fluorophenol	54	21 - 100	25 - 121
2,4,6-Tribromophenol	56	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 12 of 12
Lab No. 27358
October 16, 1992

Lab No. 27358-3

Client ID: CP-117-6-8

TPH Per EPA Method 418.1
Date Extracted: 9-29-92
Date Analyzed: 9-29-92

Total Petroleum
Hydrocarbons, mg/kg 28,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 9-28-92
Date Analyzed: 10-8-92

Total Petroleum
Fuel Hydrocarbons, mg/kg 24,000 X2

TPH as Aged Gas, Diesel, and Heavy Oil

SURROGATE RECOVERY, %
1-chlorooctane
o-terphenyl

206	X9
383	X9

SOUND ANALYTICAL SERVICES


DENNIS L. BEAN

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: Burlington Environmental Engineering
Lab No: 27358qc1
Matrix: Soil
Units: mg/kg
Date: October 16, 1992

DUPLICATE

Dup No. 27358-1

Parameter	Sample(S)	Duplicate(D)	RPD
Total Petroleum Hydrocarbons	38,000	34,000	11.1

RPD = Relative Percent Difference
$$= [(S - D) / ((S + D) / 2)] \times 100$$

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

MSD No. 27358-1

Parameter	Sample Result (SR)	Spiked Sample Result (MS)	Spike Added (SA)	%R	Spike Dup Result (MSD)	RPD
Total Petroleum Hydrocarbons	38,000	46,000	580	X5	41,000	11.5

%R = Percent Recovery
$$= [(MS - SR) / SA] \times 100$$

RPD = Relative Percent Difference
$$= [(MS - MSD) / ((MS + MSD) / 2)] \times 100$$

METHOD BLANK

Parameter	Blank Value
Total Petroleum Hydrocarbons	< 100

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QUALITY CONTROL REPORT

Total Petroleum Fuel Hydrocarbons by Method 8015

Page 1 of 2

Client: Burlington Environmental Engineering
Lab No: 27358qc2
Matrix: Soil
Units: mg/kg
Date: October 16, 1992

DUPLICATE

Dup. No. 27358-2

Parameter	Sample(S)	Duplicate(D)	RPD	Flags
Total Petroleum Fuel Hydrocarbons	38,000	32,000	17.1	X2
<u>SURROGATE RECOVERY%</u>				
1-chlorooctane	56	169		X9
o-terphenyl	239	393		X9

RPD = relative percent difference
$$= [(S - D) / ((S + D) / 2)] \times 100$$

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

MSD No. 27358-2

Parameter	Sample Result (SR)	Spiked Sample Result (MS)	Spike Added (SA)	%R	Spike Dup Result (MSD)	RPD
Total Petroleum Fuel Hydrocarbons	38,000	27,000 X5	405	X5	34,000	X5

%R = Percent Recovery
$$= [(MS - SR) / SA] \times 100$$

RPD = Relative Percent Difference
$$= [(MS - MSD) / ((MS + MSD) / 2)] \times 100$$

Continued

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

Total Petroleum Fuel Hydrocarbons by Method 8015

Page 2 of 2

Client: Burlington Environmental Engineering
Lab No: 27358qc2
Matrix: Soil
Units: mg/kg
Date: October 16, 1992

METHOD BLANK

Parameter	Blank Value
Total Petroleum Fuel Hydrocarbons	< 10
<u>SURROGATE RECOVERY%</u>	
1-chlorooctane	85
o-terphenyl	69

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

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QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 1 of 3

Client: Burlington Environmental Engineering
Lab No: 27358qc3
Units: ug/kg
Date: October 16, 1992
Blank No: P2274

METHOD BLANK

Compound	Blank Value	PQL
Phenol	ND	330
bis(2-Chloroethyl) ether	ND	330
2-Chlorophenol	ND	330
1,3-Dichlorobenzene	ND	330
1,4-Dichlorobenzene	ND	330
Benzyl Alcohol	ND	660
1,2-Dichlorobenzene	ND	330
2-Methylphenol	ND	330
bis(2-Chloroisopropyl) ether	ND	330
4-Methylphenol	ND	330
N-Nitroso-Di-N-propylamine	ND	330
Hexachloroethane	ND	330
Nitrobenzene	ND	330
Isophorone	ND	330
2-Nitrophenol	ND	330
2,4-Dimethylphenol	ND	330
Benzoic Acid	ND	1,650
bis(2-Chloroethoxy)methane	ND	330
2,4-Dichlorophenol	ND	330
1,2,4-Trichlorobenzene	ND	330
Naphthalene	ND	330
4-Chloroaniline	ND	660
Hexachlorobutadiene	ND	330
4-Chloro-3-methylphenol	ND	660
2-Methylnaphthalene	ND	330
Hexachlorocyclopentadiene	ND	330
2,4,6-Trichlorophenol	ND	330
2,4,5-Trichlorophenol	ND	330
2-Chloronaphthalene	ND	330
2-Nitroaniline	ND	1,650
Dimethyl phthalate	ND	330
Acenaphthylene	ND	330

Continued

SOUND ANALYTICAL SERVICES, INC.

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 2 of 3

Client: Burlington Environmental Engineering
 Lab No: 27358qc3
 Units: ug/kg
 Date: October 16, 1992
 Blank No: P2274

METHOD BLANK

Compound	Blank Value	PQL	Flags
3-Nitroaniline	ND	1,650	
Acenaphthene	ND	330	
2,4-Dinitrophenol	ND	1,650	
4-Nitrophenol	ND	1,650	
Dibenzofuran	ND	330	
2,4-Dinitrotoluene	ND	330	
2,4-Dinitrotoluene	ND	330	
2,6-Dinitrotoluene	ND	330	
Diethylphthalate	90	330	J
4-Chlorophenyl phenyl ether	ND	330	
Fluorene	ND	330	
4-Nitroaniline	ND	1,650	
4,6-Dinitro-2-methylphenol	ND	1,650	
N-Nitrosodiphenylamine	ND	330	
4-Bromophenyl phenyl ether	ND	330	
Hexachlorobenzene	ND	330	
Pentachlorophenol	ND	1,650	
Phenanthrene	ND	330	
Anthracene	ND	330	
Di-n-butylphthalate	300	330	J
Fluoranthene	ND	330	
Pyrene	ND	330	
Butyl benzyl phthalate	ND	330	
3,3'-Dichlorobenzidine	ND	660	
Benzo(a)anthracene	ND	330	
bis(2-ethylhexyl)phthalate	240	330	J
Chrysene	ND	330	
Di-n-octyl phthalate	30	330	J
Benzo(b)fluoranthene	ND	330	
Benzo(k)fluoranthene	ND	330	
Benzo(a)pyrene	ND	330	
Indeno(1,2,3-cd)pyrene	ND	330	
Dibenz(a,h)anthracene	ND	330	
Benzo(g,h,i)perylene	ND	330	

Continued.

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 3 of 3

Client: Burlington Environmental Engineering
Lab No: 27358qc3
Units: ug/kg
Date: October 16, 1992
Blank No: P2274

ND = Not Detected.

PQL = Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

SEMIVOLATILE SURROGATES

Surrogate	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d5	78	35 - 114	23 - 120
2-Fluorobiphenyl	80	43 - 116	30 - 115
p-Terphenyl-d14	68	33 - 141	18 - 137
Phenol-d6	56	10 - 94	24 - 113
2-Fluorophenol	64	21 - 100	25 - 121
2,4,6-TBP	63	10 - 123	19 - 122

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

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QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 1 of 3

Client: Burlington Environmental Engineering
Lab No: 27358qc4
Matrix: Soil
Units: ug/kg
Date: October 16, 1992
Dup No: 27358-3

DUPLICATE

Compound	Sample (S)	Duplicate (D)	RPD	FLAGS
Phenol	ND	ND	0.0	
bis(2-Chloroethyl) ether	ND	ND	0.0	
2-Chlorophenol	ND	ND	0.0	
1,3-Dichlorobenzene	ND	ND	0.0	
1,4-Dichlorobenzene	ND	ND	0.0	
Benzyl Alcohol	ND	ND	0.0	
1,2-Dichlorobenzene	ND	ND	0.0	
2-Methylphenol	ND	ND	0.0	
bis(2-Chloroisopropyl) ether	ND	ND	0.0	
4-Methylphenol	ND	ND	0.0	
N-Nitroso-Di-N-propylamine	ND	ND	0.0	
Hexachloroethane	ND	ND	0.0	
Nitrobenzene	ND	ND	0.0	
Isophorone	ND	ND	0.0	
2-Nitrophenol	ND	ND	0.0	
2,4-Dimethylphenol	ND	ND	0.0	
Benzoic Acid	ND	ND	0.0	
bis(2-Chloroethoxy) methane	ND	ND	0.0	
2,4-Dichlorophenol	ND	ND	0.0	
1,2,4-Trichlorobenzene	ND	ND	0.0	
Naphthalene	5,400	8,000	39	X4a
4-Chloroaniline	ND	ND	0.0	
Hexachlorobutadiene	ND	ND	0.0	
4-Chloro-3-methylphenol	ND	ND	0.0	
2-Methylnaphthalene	36,000	51,000	34	
Hexachlorocyclopentadiene	ND	ND	0.0	
2,4,6-Trichlorophenol	ND	ND	0.0	
2,4,5-Trichlorophenol	ND	ND	0.0	
2-Chloronaphthalene	ND	ND	0.0	
2-Nitroaniline	ND	ND	0.0	
Dimethyl phthalate	ND	ND	0.0	

Continued

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 2 of 3

Client: Burlington Environmental Engineering
 Lab No: 27358qc4
 Matrix: Soil
 Units: ug/kg
 Date: October 16, 1992
 Dup No: 27358-3

DUPLICATE

Compound	Sample (S)	Duplicate (D)	RPD	FLAGS
Acenaphthylene	ND	ND	0.0	
3-Nitroaniline	ND	ND	0.0	
Acenaphthene	1,300	2,200	51	X4a
2,4-Dinitrophenol	ND	ND	0.0	
4-Nitrophenol	ND	ND	0.0	
Dibenzofuran	1,300	1,900	38	X4a
2,4-Dinitrotoluene	ND	ND	0.0	
2,6-Dinitrotoluene	ND	ND	0.0	
Diethylphthalate	ND	ND	0.0	
4-Chlorophenyl phenyl ether	ND	ND	0.0	
Fluorene	5,800	7,300	23	X4a
4-Nitroaniline	ND	ND	0.0	
4,6-Dinitro-2-methylphenol	ND	ND	0.0	
N-Nitrosodiphenylamine	ND	ND	0.0	
4-Bromophenyl phenyl ether	ND	ND	0.0	
Hexachlorobenzene	ND	ND	0.0	
Pentachlorophenol	ND	ND	0.0	
Phenanthrene	11,000	16,000	37	X4a
Anthracene	1,200	2,700	77	X4a
Di-n-butylphthalate	26,000	19,000	31	X4a, J
Fluoranthene	1,500	1,900	23	X4a
Pyrene	3,000	3,800	24	X4a
Butyl benzyl phthalate	ND	ND	0.0	
3,3'-Dichlorobenzidine	ND	ND	0.0	
Benzo(a)anthracene	ND	800	0.0	NA, J
bis(2-ethylhexyl)phthalate	13,000	17,000	27	
Chrysene	1,200	1,700	34	X4a
Di-n-octyl phthalate	ND	ND	0.0	
Benzo(b)fluoranthene	ND	ND	0.0	
Benzo(k)fluoranthene	ND	ND	0.0	
Benzo(a)pyrene	ND	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	ND	0.0	
Dibenz(a,h)anthracene	ND	ND	0.0	
Benzo(g,h,i)perylene	ND	ND	0.0	

Continued

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 3 of 3

Client: Burlington Environmental Engineering
Lab No: 27358qc4
Matrix: Soil
Units: ug/kg
Date: October 16, 1992
Dup No: 27358-3

DUPLICATE

ND = Not Detected

RPD = Relative Percent Difference
= $[(S - D) / ((S + D) / 2)] \times 100$

SEMIVOLATILE SURROGATES

Surrogate	Sample	Duplicate	Control Limits	
			Water	Soil
Nitrobenzene - d5	59	72	35 - 114	23 - 120
2-Fluorobiphenyl	66	80	43 - 116	30 - 115
p-Terphenyl-d14	66	90	33 - 141	18 - 137
Phenol-d6	54	76	10 - 94	24 - 113
2-Fluorophenol	54	78	21 - 100	25 - 121
2,4,6-TBP	56	70	10 - 123	19 - 122

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Burlington Environmental Engineering
Lab No: 27358qc5
Date: October 16, 1992

SEMI-VOLATILE ORGANICS

COMPOUND	SPIKE (ug/kg)	SAMPLE RESULT	CONC MS	% REC	CONC MSD	% REC	RPD
1,2,4-Trichlorobenzene	97,300	ND	81,200	83	59,800	65	24
Acenaphthene	97,300	*(1,700)	91,000	92	69,600	76	19
2,4 Dinitrotoluene	97,300	ND	117,000	120	95,115	103	15
Pyrene	97,300	*(3,000)	78,100	77	58,000	63	10
N-nitrosodi-n- Propylamine	97,300	ND	84,100	86	66,700	73	16
1,4-Dichlorobenzene	97,300	ND	80,900	83	61,700	67	21
Pentachlorophenol	97,300	ND	56,400	58	47,000	51	13
Phenol	97,300	ND	82,800	85	53,200	58	38
2-Chlorophenol	97,300	ND	56,900	58	38,100	41	34
4-Chloro-3-Methylphenol	97,300	ND	83,600	86	54,500	59	37
4-Nitrophenol	97,300	ND	65,600	67	41,000	45	39

RPD = Relative Percent Difference

% REC = Percent Recovery

*QC Limits:

	<u>RPD</u>	<u>% RECOVERY</u>
1,2,4-Trichlorobenzene	23	38-107
Acenaphthene	19	31-137
2,4 Dinitrotoluene	47	28-89
Pyrene	36	35-142
N-nitrosodi-n- Propylamine	38	41-126
1,4-Dichlorobenzene	27	28-104
Pentachlorophenol	47	17-109
Phenol	35	26-90
2-Chlorophenol	50	25-102
4-Chloro-3-Methylphenol	33	26-103
4-Nitrophenol	50	11-114

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

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DATA QUALIFIER FLAGS

- ND: Indicates that the analyte was analyzed for but was not detected. The associated numerical value is the practical quantitation limit, corrected for sample dilution.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- C: The identification of this analyte was confirmed by GC/MS.
- B: This analyte was also detected in the associated method blank. There is a possibility of blank contamination.
- E: The concentration of this analyte exceeded the instrument calibration range.
- D: The reported result for this analyte is calculated based on a secondary dilution factor.
- A: This TIC is a suspected aldol-condensation product.
- M: Quantitation Limits are elevated due to matrix interferences.
- S: The calibration quality control criteria for this compound were not met. The reported concentration should be considered an estimated quantity.
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product. Further testing is suggested for identification.
- X3: Identification and quantification of peaks was complicated by matrix interference; GC/MS confirmation is recommended.
- X4: RPD for duplicates outside QC limits. Sample was re-analyzed with similar results. Sample matrix is nonhomogeneous.
- X4a: RPD for duplicates outside QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike was diluted out during analysis.
- X6: Recovery of matrix spike outside QC limits. Sample was re-analyzed with similar results.
- X7: Recovery of matrix spike outside QC limits. Matrix interference is indicated by blank spike recovery data.
- X8: Surrogate was diluted out during analysis.
- X9: Surrogate recovery outside QC limits due to matrix composition.
- X10: Surrogate recovery outside QC limits due to high contaminant levels.



BURLINGTON ENVIRONMENTAL

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P.O. Box 330
Columbia, IL 62236-0330
618/281-7173
618/281-5120 FAX

CHAIN-OF-CUSTODY RECORD

C.O.C. SERIAL NO. **6068**

PROJECT NAME PER 91 RFI						NO. OF CONTAINERS	TYPE OF ANALYSIS					PRESER- VATIVES		REMARKS (CHEMICAL ANALYSIS REQUEST FORM NUMBER IF APPLICABLE)
PROJECT NUMBER 6211878				MAJOR TASK 7201			<div style="display: flex; flex-direction: column; align-items: center;"> <div>TPH 116.1</div> <div>TPH 117.1</div> <div>BNA</div> </div>					ICED	CHEMICALS ADDED	
SAMPLERS J. PENLE														
LAB DESTINATION SNS														
SAMPLE NO.	DATE	TIME	COMP	GRAB	SAMPLE LOCATION									
✓	9-23	1330		X	CP-116-2-2.5	1	X	X	X					
✓	9-24	905		X	CP-117-2-4	1	X	X	X					
✓	9-24	1040		X	CP-117-6-8	1	X	X	X					

RELINQUISHED BY

SIGNATURE

[Signature]

DATE

TIME

9-25

10:25

RECEIVED BY

SIGNATURE

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DATE

TIME

9/25

10:25A

SHIPPING NOTES

LAB NOTES

RECEIVED

NOV 25 1992

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

Burlington Environmental Inc.
Technical Services

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

November 17, 1992

To: Burlington Environmental Engineering

PROJECT NUMBER: 624878

PROJECT NAME: Pier 91

LABORATORY WORK ORDER NUMBER: 27432

Samples were taken on 9/28/92 and 9/25/92, and received at Sound on 9/29/92. The samples were analyzed for Semivolatile organics by EPA 8270, Total Petroleum Fuel Hydrocarbons by EPA 8015 modified, and for Total Petroleum Hydrocarbons by EPA 418.1 modified for soil. All samples were analyzed within the recommended holding times.

SEMIVOLATILE ORGANICS-

Samples -1, -2, and -3 were extracted on 10/1/92, and analyzed by EPA 8270 on 10/11/92. The samples were diluted prior to analysis due to high levels of matrix interferences. No compounds above the PQL's were detected in the method blank. Matrix spike and matrix spike duplicate percent recoveries for 2,4-Dinitrotoluene were outside acceptance limits. All other quality control parameters were within limits.

TOTAL PETROLEUM FUEL HYDROCARBONS-

Samples -1, -2, and -3 were extracted on 10/14/92, and analyzed by EPA method 8015 modified on 10/15/92. Surrogate recoveries for -1, -2, and -3 were outside acceptance limits due to sample dilution prior to analysis. All samples were flagged X2 to indicate the presence of compounds falling across all the hydrocarbon ranges. Matrix spike and matrix spike duplicate percent recoveries were outside quality control limits due to sample dilution required due to matrix interferences. All other quality control parameters were acceptable.

TOTAL PETROLEUM HYDROCARBONS-

Samples -1, -2, and -3 were extracted on 9/30/92, and analyzed on 10/1/92, using EPA method 418.1 modified for soils. Matrix spike and matrix spike duplicate percent recoveries were outside quality control limits due to sample dilution prior to analysis required due to high matrix interferences. All other quality control was within acceptance limits.

All results are dry weight corrected.

SOUND ANALYTICAL SERVICES, INC.

No blank correction was used in reporting results.

Please call if there are any questions about this report.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Burlington Environmental
Engineering

Date: October 16, 1992

Report On: Analysis of Soil

Lab No.: 27432

Page 1 of 16

IDENTIFICATION:

Samples Received on 09-29-92

Project: 624878 Pier 91

ANALYSIS:

Lab No. 27432-1

Client ID: CP-HA4-1.5-2

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 10-1-92

Date Analyzed: 10-11-92

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
108-95-2	Phenol	ND	10,000	
111-44-4	bis(2-Chloroethyl) ether	ND	10,000	
95-57-8	2-Chlorophenol	ND	10,000	
541-73-1	1,3-Dichlorobenzene	ND	10,000	
106-46-7	1,4-Dichlorobenzene	ND	10,000	
100-51-6	Benzyl Alcohol	ND	20,000	
95-50-1	1,2-Dichlorobenzene	ND	10,000	
95-48-7	2-Methylphenol	ND	10,000	
39638-32-9	bis(2-Chloroisopropyl)ether	ND	10,000	
106-44-5	4-Methylphenol	ND	10,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	10,000	
67-72-1	Hexachloroethane	ND	10,000	
98-95-3	Nitrobenzene	ND	10,000	
78-59-1	Isophorone	ND	10,000	
88-75-5	2-Nitrophenol	ND	10,000	
105-67-9	2,4-Dimethylphenol	ND	10,000	
65-85-0	Benzoic Acid	ND	50,000	
111-91-1	bis(2-Chloroethoxy)methane	ND	10,000	
120-83-2	2,4-Dichlorophenol	ND	10,000	
120-82-1	1,2,4-Trichlorobenzene	ND	10,000	
91-20-3	Naphthalene	6,300	10,000	J
106-47-8	4-Chloroaniline	ND	20,000	
87-68-3	Hexachlorobutadiene	ND	10,000	
59-50-7	4-Chloro-3-methylphenol	ND	20,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 2 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-1

Client ID: CP-HA4-1.5-2

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	
91-57-6	2-Methylnaphthalene	34,000	10,000	
77-47-4	Hexachlorocyclopentadiene	ND	10,000	
88-06-2	2,4,6-Trichlorophenol	ND	10,000	
95-95-4	2,4,5-Trichlorophenol	ND	10,000	
91-58-7	2-Chloronaphthalene	ND	10,000	
88-74-4	2-Nitroaniline	ND	50,000	
131-11-3	Dimethyl phthalate	ND	10,000	
208-96-8	Acenaphthylene	ND	10,000	
606-20-2	2,6-Dinitrotoluene	ND	10,000	
99-09-2	3-Nitroaniline	ND	50,000	
83-32-9	Acenaphthene	1,900	10,000	J
51-28-5	2,4-Dinitrophenol	ND	50,000	
100-02-7	4-Nitrophenol	ND	50,000	
132-64-9	Dibenzofuran	1,800	10,000	J
121-14-2	2,4-Dinitrotoluene	ND	10,000	
84-66-2	Diethylphthalate	ND	10,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	10,000	
86-73-7	Fluorene	4,900	10,000	J
100-01-6	4-Nitroaniline	ND	50,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	50,000	
86-30-6	N-Nitrosodiphenylamine	ND	10,000	
101-55-3	4-Bromophenyl phenyl ether	ND	10,000	
118-74-1	Hexachlorobenzene	ND	10,000	
87-86-5	Pentachlorophenol	ND	50,000	
85-01-8	Phenanthrene	15,000	10,000	
120-12-7	Anthracene	2,600	10,000	J
84-74-2	Di-n-butylphthalate	81,000	10,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 3 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-1

Client ID: CP-HA4-1.5-2

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
206-44-0	Fluoranthene	2,100	10,000	J
129-00-0	Pyrene	4,900	10,000	J
85-68-7	Butyl benzyl phthalate	1,300	10,000	J
91-94-1	3,3'-Dichlorobenzidine	ND	20,000	
56-55-3	Benzo(a)anthracene	1,700	10,000	J
218-01-9	Chrysene	2,500	10,000	J
117-81-7	bis(2-ethylhexyl)phthalate	9,500	10,000	J
117-84-0	Di-n-octyl phthalate	ND	10,000	
205-99-2	Benzo(b)fluoranthene	ND	10,000	
207-08-9	Benzo(k)fluoranthene	ND	10,000	
50-32-8	Benzo(a)pyrene	ND	10,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10,000	
53-70-3	Dibenz(a,h)anthracene	ND	10,000	
191-24-2	Benzo(g,h,i)perylene	ND	10,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	78	35 - 114	23 - 120
2-Fluorobiphenyl	84	43 - 116	30 - 115
p-Terphenyl-d ₁₄	69	33 - 141	18 - 137
Phenol-d ₆	73	10 - 94	24 - 113
2-Fluorophenol	77	21 - 100	25 - 121
2,4,6-Tribromophenol	82	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 4 of 16
Lab No. 27432
October 16, 1992

Lab No. 27432-1

Client ID: CP-HA4-1.5-2

TPH Per EPA Method 418.1
Date Extracted: 9-30-92
Date Analyzed: 10-1-92

Total Petroleum
Hydrocarbons, mg/kg 56,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 10-14-92
Date Analyzed: 10-15-92

Total Petroleum
Fuel Hydrocarbons, mg/kg 52,000 X2

SURROGATE RECOVERY, %
1-Chlorooctane X8
O-Terphenyl X8

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 5 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-2

Client ID: CP-HA4-3-3.5

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 10-1-92

Date Analyzed: 10-11-92

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
108-95-2	Phenol	ND	14,000	
111-44-4	bis(2-Chloroethyl) ether	ND	14,000	
95-57-8	2-Chlorophenol	ND	14,000	
541-73-1	1,3-Dichlorobenzene	ND	14,000	
106-46-7	1,4-Dichlorobenzene	ND	14,000	
100-51-6	Benzyl Alcohol	1,500	28,000	J
95-50-1	1,2-Dichlorobenzene	ND	14,000	
95-48-7	2-Methylphenol	ND	14,000	
39638-32-9	bis(2-Chloroisopropyl) ether	ND	14,000	
106-44-5	4-Methylphenol	ND	14,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	14,000	
67-72-1	Hexachloroethane	ND	14,000	
98-95-3	Nitrobenzene	ND	14,000	
78-59-1	Isophorone	ND	14,000	
88-75-5	2-Nitrophenol	ND	14,000	
105-67-9	2,4-Dimethylphenol	ND	14,000	
65-85-0	Benzoic Acid	ND	70,000	
111-91-1	bis(2-Chloroethoxy) methane	ND	14,000	
120-83-2	2,4-Dichlorophenol	ND	14,000	
120-82-1	1,2,4-Trichlorobenzene	ND	14,000	
91-20-3	Naphthalene	7,400	14,000	J
106-47-8	4-Chloroaniline	ND	28,000	
87-68-3	Hexachlorobutadiene	ND	14,000	
59-50-7	4-Chloro-3-methylphenol	8,900	28,000	J

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 6 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-2

Client ID: CP-HA4-3-3.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
91-57-6	2-Methylnaphthalene	39,000	14,000	
77-47-4	Hexachlorocyclopentadiene	ND	14,000	
88-06-2	2,4,6-Trichlorophenol	ND	14,000	
95-95-4	2,4,5-Trichlorophenol	ND	14,000	
91-58-7	2-Chloronaphthalene	ND	14,000	
88-74-4	2-Nitroaniline	ND	70,000	
131-11-3	Dimethyl phthalate	ND	14,000	
208-96-8	Acenaphthylene	ND	14,000	
606-20-2	2,6-Dinitrotoluene	ND	14,000	
99-09-2	3-Nitroaniline	ND	70,000	
83-32-9	Acenaphthene	3,300	14,000	J
51-28-5	2,4-Dinitrophenol	ND	70,000	
100-02-7	4-Nitrophenol	ND	70,000	
132-64-9	Dibenzofuran	2,700	14,000	J
121-14-2	2,4-Dinitrotoluene	ND	14,000	
84-66-2	Diethylphthalate	ND	14,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	14,000	
86-73-7	Fluorene	7,100	14,000	J
100-01-6	4-Nitroaniline	ND	70,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	70,000	
86-30-6	N-Nitrosodiphenylamine	4,100	14,000	J
101-55-3	4-Bromophenyl phenyl ether	ND	14,000	
118-74-1	Hexachlorobenzene	ND	14,000	
87-86-5	Pentachlorophenol	ND	70,000	
85-01-8	Phenanthrene	20,000	14,000	
120-12-7	Anthracene	4,100	14,000	J
84-74-2	Di-n-butylphthalate	110,000	14,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 7 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-2

Client ID: CP-HA4-3-3.5

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
206-44-0	Fluoranthene	3,600	14,000	J
129-00-0	Pyrene	9,000	14,000	J
85-68-7	Butyl benzyl phthalate	1,800	14,000	J
91-94-1	3,3'-Dichlorobenzidine	ND	28,000	
56-55-3	Benzo(a)anthracene	3,500	14,000	J
218-01-9	Chrysene	6,000	14,000	J
117-81-7	bis(2-ethylhexyl)phthalate	20,000	14,000	
117-84-0	Di-n-octyl phthalate	ND	14,000	
205-99-2	Benzo(b)fluoranthene	ND	14,000	
207-08-9	Benzo(k)fluoranthene	ND	14,000	
50-32-8	Benzo(a)pyrene	1,500	14,000	J
193-39-5	Indeno(1,2,3-cd)pyrene	ND	14,000	
53-70-3	Dibenz(a,h)anthracene	ND	14,000	
191-24-2	Benzo(g,h,i)perylene	ND	14,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	75	35 - 114	23 - 120
2-Fluorobiphenyl	96	43 - 116	30 - 115
p-Terphenyl-d ₁₄	79	33 - 141	18 - 137
Phenol-d ₆	76	10 - 94	24 - 113
2-Fluorophenol	78	21 - 100	25 - 121
2,4,6-Tribromophenol	87	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 8 of 16
Lab No. 27432
October 16, 1992

Lab No. 27432-2

Client ID: CP-HA4-3-3.5

TPH Per EPA Method 418.1
Date Extracted: 9-30-92
Date Analyzed: 10-1-92

Total Petroleum
Hydrocarbons, mg/kg 67,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 10-14-92
Date Analyzed: 10-15-92

Total Petroleum
Fuel Hydrocarbons, mg/kg 92,000 X2

SURROGATE RECOVERY, %
1-Chlorooctane X8
O-Terphenyl X8

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 9 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-3

Client ID: CP-119-6-8

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 10-1-92

Date Analyzed: 10-12-92

CAS No.	Compounds	Concentration ug/kg	PQL	
108-95-2	Phenol	ND	12,000	
111-44-4	bis(2-Chloroethyl) ether	ND	12,000	
95-57-8	2-Chlorophenol	ND	12,000	
541-73-1	1,3-Dichlorobenzene	ND	12,000	
106-46-7	1,4-Dichlorobenzene	ND	12,000	
100-51-6	Benzyl Alcohol	ND	24,000	
95-50-1	1,2-Dichlorobenzene	ND	12,000	
95-48-7	2-Methylphenol	ND	12,000	
39638-32-9	bis(2-Chloroisopropyl) ether	ND	12,000	
106-44-5	4-Methylphenol	ND	12,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	12,000	
67-72-1	Hexachloroethane	ND	12,000	
98-95-3	Nitrobenzene	ND	12,000	
78-59-1	Isophorone	ND	12,000	
88-75-5	2-Nitrophenol	ND	12,000	
105-67-9	2,4-Dimethylphenol	ND	12,000	
65-85-0	Benzoic Acid	ND	60,000	
111-91-1	bis(2-Chloroethoxy) methane	ND	12,000	
120-83-2	2,4-Dichlorophenol	ND	12,000	
120-82-1	1,2,4-Trichlorobenzene	ND	12,000	
91-20-3	Naphthalene	8,600	12,000	J
106-47-8	4-Chloroaniline	ND	24,000	
87-68-3	Hexachlorobutadiene	ND	12,000	
59-50-7	4-Chloro-3-methylphenol	ND	24,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 10 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-3

Client ID: CP-119-6-8

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
91-57-6	2-Methylnaphthalene	52,000	12,000	
77-47-4	Hexachlorocyclopentadiene	ND	12,000	
88-06-2	2,4,6-Trichlorophenol	ND	12,000	
95-95-4	2,4,5-Trichlorophenol	ND	12,000	
91-58-7	2-Chloronaphthalene	ND	12,000	
88-74-4	2-Nitroaniline	ND	60,000	
131-11-3	Dimethyl phthalate	ND	12,000	
208-96-8	Acenaphthylene	ND	12,000	
606-20-2	2,6-Dinitrotoluene	ND	12,000	
99-09-2	3-Nitroaniline	ND	60,000	
83-32-9	Acenaphthene	1,000	12,000	J
51-28-5	2,4-Dinitrophenol	ND	60,000	
100-02-7	4-Nitrophenol	ND	60,000	
132-64-9	Dibenzofuran	1,700	12,000	J
121-14-2	2,4-Dinitrotoluene	ND	12,000	
84-66-2	Diethylphthalate	ND	12,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	12,000	
86-73-7	Fluorene	5,000	12,000	J
100-01-6	4-Nitroaniline	ND	60,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	60,000	
86-30-6	N-Nitrosodiphenylamine	ND	12,000	
101-55-3	4-Bromophenyl phenyl ether	ND	12,000	
118-74-1	Hexachlorobenzene	ND	12,000	
87-86-5	Pentachlorophenol	ND	60,000	
85-01-8	Phenanthrene	7,500	12,000	J
120-12-7	Anthracene	1,300	12,000	J
84-74-2	Di-n-butylphthalate	8,900	12,000	J

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 11 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-3

Client ID: CP-119-6-8

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
206-44-0	Fluoranthene	ND	12,000	J
129-00-0	Pyrene	ND	12,000	
85-68-7	Butyl benzyl phthalate	ND	12,000	
91-94-1	3,3'-Dichlorobenzidine	ND	24,000	
56-55-3	Benzo(a)anthracene	ND	12,000	
218-01-9	Chrysene	ND	12,000	
117-81-7	bis(2-ethylhexyl)phthalate	3,800	12,000	
117-84-0	Di-n-octyl phthalate	ND	12,000	
205-99-2	Benzo(b)fluoranthene	ND	12,000	
207-08-9	Benzo(k)fluoranthene	ND	12,000	
50-32-8	Benzo(a)pyrene	ND	12,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	12,000	
53-70-3	Dibenz(a,h)anthracene	ND	12,000	
191-24-2	Benzo(g,h,i)perylene	ND	12,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	71	35 - 114	23 - 120
2-Fluorobiphenyl	90	43 - 116	30 - 115
p-Terphenyl-d ₁₄	77	33 - 141	18 - 137
Phenol-d ₆	69	10 - 94	24 - 113
2-Fluorophenol	67	21 - 100	25 - 121
2,4,6-Tribromophenol	73	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 12 of 16
Lab No. 27432
October 16, 1992

Lab No. 27432-3

Client ID: CP-119-6-8

TPH Per EPA Method 418.1
Date Extracted: 9-30-92
Date Analyzed: 10-1-92

Total Petroleum	
Hydrocarbons, mg/kg	20,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 10-14-92
Date Analyzed: 10-15-92

Total Petroleum		
Fuel Hydrocarbons, mg/kg	37,000	X2

<u>SURROGATE RECOVERY, %</u>	
1-Chlorooctane	X8
O-Terphenyl	X8

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 13 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-4

Client ID: CP-119-2-4

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 10-1-92

Date Analyzed: 10-14-92

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
108-95-2	Phenol	ND	10,000	
111-44-4	bis(2-Chloroethyl) ether	ND	10,000	
95-57-8	2-Chlorophenol	ND	10,000	
541-73-1	1,3-Dichlorobenzene	ND	10,000	
106-46-7	1,4-Dichlorobenzene	ND	10,000	
100-51-6	Benzyl Alcohol	ND	20,000	
95-50-1	1,2-Dichlorobenzene	ND	10,000	
95-48-7	2-Methylphenol	ND	10,000	
39638-32-9	bis(2-Chloroisopropyl) ether	ND	10,000	
106-44-5	4-Methylphenol	ND	10,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	10,000	
67-72-1	Hexachloroethane	ND	10,000	
98-95-3	Nitrobenzene	ND	10,000	
78-59-1	Isophorone	ND	10,000	
88-75-5	2-Nitrophenol	ND	10,000	
105-67-9	2,4-Dimethylphenol	ND	10,000	
65-85-0	Benzoic Acid	ND	50,000	
111-91-1	bis(2-Chloroethoxy)methane	ND	10,000	
120-83-2	2,4-Dichlorophenol	ND	10,000	
120-82-1	1,2,4-Trichlorobenzene	ND	10,000	
91-20-3	Naphthalene	20,000	10,000	
106-47-8	4-Chloroaniline	ND	20,000	
87-68-3	Hexachlorobutadiene	ND	10,000	
59-50-7	4-Chloro-3-methylphenol	ND	20,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 14 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-4

Client ID: CP-119-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
91-57-6	2-Methylnaphthalene	110,000	10,000	
77-47-4	Hexachlorocyclopentadiene	ND	10,000	
88-06-2	2,4,6-Trichlorophenol	ND	10,000	
95-95-4	2,4,5-Trichlorophenol	ND	10,000	
91-58-7	2-Chloronaphthalene	ND	10,000	
88-74-4	2-Nitroaniline	ND	50,000	
131-11-3	Dimethyl phthalate	ND	10,000	
208-96-8	Acenaphthylene	ND	10,000	
606-20-2	2,6-Dinitrotoluene	ND	10,000	
99-09-2	3-Nitroaniline	ND	50,000	
83-32-9	Acenaphthene	5,300	10,000	J
51-28-5	2,4-Dinitrophenol	ND	50,000	
100-02-7	4-Nitrophenol	ND	50,000	
132-64-9	Dibenzofuran	3,600	10,000	J
121-14-2	2,4-Dinitrotoluene	ND	10,000	
84-66-2	Diethylphthalate	ND	10,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	10,000	
86-73-7	Fluorene	14,900	10,000	
100-01-6	4-Nitroaniline	ND	50,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	50,000	
86-30-6	N-Nitrosodiphenylamine	ND	10,000	
101-55-3	4-Bromophenyl phenyl ether	ND	10,000	
118-74-1	Hexachlorobenzene	ND	10,000	
87-86-5	Pentachlorophenol	ND	50,000	
85-01-8	Phenanthrene	34,000	10,000	
120-12-7	Anthracene	4,300	10,000	J
84-74-2	Di-n-butylphthalate	16,000	10,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 15 of 16
 Lab No. 27432
 October 16, 1992

Lab No. 27432-4

Client ID: CP-119-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	Flags
206-44-0	Fluoranthene	3,100	10,000	J
129-00-0	Pyrene	11,000	10,000	
85-68-7	Butyl benzyl phthalate	ND	10,000	
91-94-1	3,3'-Dichlorobenzidine	ND	20,000	
56-55-3	Benzo(a)anthracene	2,200	10,000	J
218-01-9	Chrysene	4,600	10,000	J
117-81-7	bis(2-ethylhexyl)phthalate	130,000	10,000	
117-84-0	Di-n-octyl phthalate	ND	10,000	
205-99-2	Benzo(b)fluoranthene	ND	10,000	
207-08-9	Benzo(k)fluoranthene	ND	10,000	
50-32-8	Benzo(a)pyrene	ND	10,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10,000	
53-70-3	Dibenz(a,h)anthracene	ND	10,000	
191-24-2	Benzo(g,h,i)perylene	ND	10,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Results are reported on a dry weight basis.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	75	35 - 114	23 - 120
2-Fluorobiphenyl	91	43 - 116	30 - 115
p-Terphenyl-d ₁₄	89	33 - 141	18 - 137
Phenol-d ₆	83	10 - 94	24 - 113
2-Fluorophenol	111	21 - 100	25 - 121
2,4,6-Tribromophenol	72	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 16 of 16
Lab No. 27432
October 16, 1992

Lab No. 27432-4

Client ID: CP-119-2-4

TPH Per EPA Method 418.1
Date Extracted: 9-30-92
Date Analyzed: 10-1-92

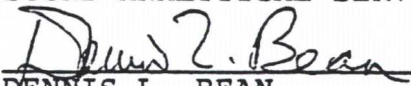
Total Petroleum
Hydrocarbons, mg/kg 60,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 10-14-92
Date Analyzed: 10-15-92

Total Petroleum
Fuel Hydrocarbons, mg/kg 45,000 X2

SURROGATE RECOVERY, %
1-Chlorooctane X8
O-Terphenyl X8

SOUND ANALYTICAL SERVICES


DENNIS L. BEAN

SOUND ANALYTICAL SERVICES, INC.

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QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 1 of 3

Client: Burlington Environmental Engineering
Lab No: 27432qc3
Units: ug/kg
Date: October 16, 1992
Blank No: P2274

METHOD BLANK

Compound	Blank Value	PQL	Flags
Phenol	ND	330	
bis(2-Chloroethyl) ether	ND	330	
2-Chlorophenol	ND	330	
1,3-Dichlorobenzene	ND	330	
1,4-Dichlorobenzene	ND	330	
Benzyl Alcohol	ND	660	
1,2-Dichlorobenzene	ND	330	
2-Methylphenol	ND	330	
bis(2-Chloroisopropyl) ether	ND	330	
4-Methylphenol	ND	330	
N-Nitroso-Di-N-propylamine	ND	330	
Hexachloroethane	ND	330	
Nitrobenzene	ND	330	
Isophorone	ND	330	
2-Nitrophenol	ND	330	
2,4-Dimethylphenol	ND	330	
Benzoic Acid	ND	1,650	
bis(2-Chloroethoxy)methane	ND	330	
2,4-Dichlorophenol	ND	330	
1,2,4-Trichlorobenzene	ND	330	
Naphthalene	ND	330	
4-Chloroaniline	ND	660	
Hexachlorobutadiene	ND	330	
4-Chloro-3-methylphenol	ND	660	
2-Methylnaphthalene	ND	330	
Hexachlorocyclopentadiene	ND	330	
2,4,6-Trichlorophenol	ND	330	
2,4,5-Trichlorophenol	ND	330	
2-Chloronaphthalene	ND	330	
2-Nitroaniline	ND	1,650	
Dimethyl phthalate	ND	330	
Acenaphthylene	ND	330	

Continued

SOUND ANALYTICAL SERVICES, INC.

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 2 of 3

Client: Burlington Environmental Engineering
 Lab No: 27432qc3
 Units: ug/kg
 Date:
 Blank No: P2274

METHOD BLANK

Compound	Blank Value	PQL	Flags
3-Nitroaniline	ND	1,650	
Acenaphthene	ND	330	
2,4-Dinitrophenol	ND	1,650	
4-Nitrophenol	ND	1,650	
Dibenzofuran	ND	330	
2,4-Dinitrotoluene	ND	330	
2,4-Dinitrotoluene	ND	330	
2,6-Dinitrotoluene	ND	330	
Diethylphthalate	90	330	J
4-Chlorophenyl phenyl ether	ND	330	
Fluorene	ND	330	
4-Nitroaniline	ND	1,650	
4,6-Dinitro-2-methylphenol	ND	1,650	
N-Nitrosodiphenylamine	ND	330	
4-Bromophenyl phenyl ether	ND	330	
Hexachlorobenzene	ND	330	
Pentachlorophenol	ND	1,650	
Phenanthrene	ND	330	
Anthracene	ND	330	
Di-n-butylphthalate	300	330	J
Fluoranthene	ND	330	
Pyrene	ND	330	
Butyl benzyl phthalate	ND	330	
3,3'-Dichlorobenzidine	ND	660	
Benzo(a)anthracene	ND	330	
bis(2-ethylhexyl)phthalate	240	330	J
Chrysene	ND	330	
Di-n-octyl phthalate	30	330	J
Benzo(b)fluoranthene	ND	330	
Benzo(k)fluoranthene	ND	330	
Benzo(a)pyrene	ND	330	
Indeno(1,2,3-cd)pyrene	ND	330	
Dibenz(a,h)anthracene	ND	330	
Benzo(g,h,i)perylene	ND	330	

Continued.

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 3 of 3

Client: Burlington Environmental Engineering
Lab No: 27432qc3
Units: ug/kg
Date: October 16, 1992
Blank No: P2274

ND = Not Detected.

PQL = Practical Quantitation Limit - These are the detection limits for this sample. This number is based on sample size, matrix and dilution required.

* Compound was detected but below PQL. Value shown is an estimated quantity.

SEMIVOLATILE SURROGATES

Surrogate	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d5	78	35 - 114	23 - 120
2-Fluorobiphenyl	80	43 - 116	30 - 115
p-Terphenyl-d14	68	33 - 141	18 - 137
Phenol-d6	56	10 - 94	24 - 113
2-Fluorophenol	64	21 - 100	25 - 121
2,4,6-TBP	63	10 - 123	19 - 122

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Burlington Environmental Engineering
Lab No: 27432qc4
Date: October 16, 1992

SEMI-VOLATILE ORGANICS

COMPOUND	SPIKE (ug/)	SAMPLE RESULT	CONC MS	% REC	CONC MSD	% REC	RPD
1,2,4-Trichlorobenzene	103,000	ND	85,400	83	99,500	96	15
Acenaphthene	103,000	1,900	98,000	93	113,000	98	5.2
2,4 Dinitrotoluene	103,000	ND	130,000	127	124,000	109	15
Pyrene	103,000	4,900	74,000	67	90,800	80	18
N-nitrosodi-n- Propylamine	103,000	6,600	80,800	72	94,700	78	8.0
1,4-Dichlorobenzene	103,000	ND	77,400	75	89,100	79	5.2
Pentachlorophenol	103,000	ND	66,100	64	77,600	69	7.5
Phenol	103,000	ND	84,800	82	96,500	85	3.6
2-Chlorophenol	103,000	ND	56,400	55	62,300	55	0
4-Chloro-3-Methylphenol	103,000	2,800	92,000	87	102,000	87	0
4-Nitrophenol	103,000	ND	83,300	81	77,600	69	16

RPD = Relative Percent Difference

% REC = Percent Recovery

*QC Limits:

	<u>RPD</u>	<u>% RECOVERY</u>
1,2,4-Trichlorobenzene	23	38-107
Acenaphthene	19	31-137
2,4 Dinitrotoluene	47	28-89
Pyrene	36	35-142
N-nitrosodi-n- Propylamine	38	41-126
1,4-Dichlorobenzene	27	28-104
Pentachlorophenol	47	17-109
Phenol	35	26-90
2-Chlorophenol	50	25-102
4-Chloro-3-Methylphenol	33	26-103
4-Nitrophenol	50	11-114

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: Burlington Environmental Engineering
Lab No: 27432qc
Matrix: Soil
Units: mg/kg
Date: October 16, 1992

DUPLICATE

Dup No. 27432-1

Parameter	Sample(S)	Duplicate(D)	RPD
Total Petroleum Hydrocarbons	56,000	47,000	17.5

RPD = Relative Percent Difference
$$= [(S - D) / ((S + D) / 2)] \times 100$$

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

MSD No. 27432-1

Parameter	Sample Result (SR)	Spiked Sample Result (MS)	Spike Added (SA)	%R	Spike Dup Result (MSD)	RPD
Total Petroleum Hydrocarbons	50,000	56,000	1,100	X5	51,000	2.0

%R = Percent Recovery
$$= [(MS - SR) / SA] \times 100$$

RPD = Relative Percent Difference
$$= [(MS - MSD) / ((MS + MSD) / 2)] \times 100$$

METHOD BLANK

Parameter	Blank Value
Total Petroleum Hydrocarbons	< 10

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

Total Petroleum Fuel Hydrocarbons by Method 8015

Page 1 of 2

Client: Burlington Environmental
Lab No: 27432qc2
Matrix: Soil
Units: mg/kg
Date: October 16, 1992

DUPLICATE

Dup. No. 27432-1

Parameter	Sample(S)	Duplicate(D)	RPD
Total Petroleum Fuel Hydrocarbons	52,000	50,000	3.4
<u>SURROGATE RECOVERY%</u>			
1-chlorooctane			X8
o-terphenyl			X8

RPD = relative percent difference
= $[(S - D) / ((S + D) / 2)] \times 100$

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

MSD No. 27432-1

Parameter	Sample Result (SR)	Spiked Sample Result (MS)	Spike Added (SA)	%R	Spike Dup Result (MSD)	RPD
Total Petroleum Fuel Hydrocarbons	52,000	48,000	405	X5	52,000	8.0

%R = Percent Recovery
= $[(MS - SR) / SA] \times 100$
RPD = Relative Percent Difference
= $[(MS - MSD) / ((MS + MSD) / 2)] \times 100$

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

Total Petroleum Fuel Hydrocarbons by Method 8015

Page 2 of 2

Client: Burlington Environmental Engineering
Lab No: 27432qc2
Matrix: Soil
Units: mg/kg
Date: October 16, 1992

METHOD BLANK

Blank No. 016F0101.D

Parameter	Blank Value
Total Petroleum Fuel Hydrocarbons	< 10
<u>SURROGATE RECOVERY%</u>	
1-chlorooctane	75
o-terphenyl	65

RECEIVED

NOV 25 1992

Burlington Environmental Inc.
Technical Services

CHAIN OF CUSTODY






CHAIN-OF-CUSTODY RECORD

C.O.C. SERIAL NO. 6070

[illegible]

RELINQUISHED BY

RECEIVED BY

SIGNATURE	DATE	TIME	SIGNATURE	DATE	TIME
	9-29	1:00		9-29	11:00
	9/29	1:00 P			

SHIPPING NOTES

LAB NOTES

Data Set 5A

RECEIVED SOUND ANALYTICAL SERVICES, INC.

NOV 25 1992

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

Burlington Environmental Inc.
Technical Services

November 17, 1992

To: Burlington Environmental Engineering

PROJECT NUMBER: 624878

PROJECT NAME: Pier 91

LABORATORY WORK ORDER NUMBER: 27555

Samples were taken on 10/1/92 and 10/5/92, and were received at Sound on 10/5/92. Samples were analyzed for Semivolatile Organics by EPA 8270, Total Petroleum Hydrocarbons by EPA 418.1 modified for soil, and Total Petroleum Fuel Hydrocarbons by EPA method 8015 modified.

SEMIVOLATILE ORGANICS-

Samples -1, -2, and -3 were extracted on 10/13/92, and analyzed on 10/23/92. Sample -3 was diluted due to high TPH concentration. No 8270 target compounds were present above the PQL. No contamination above the PQL's was present in the method blank. Duplicate results for Di-n-butylphthalate, Di-n-octylphthalate, and Benzo(a)anthracene exceeded quality control limits, but all were present at concentrations below the PQL for that compound. Percent recoveries for 2,4-Dinitrotoluene matrix spike and spike duplicate exceeded quality control limits. All other QC parameters are within acceptance limits.

TOTAL PETROLEUM FUEL HYDROCARBONS-

Samples -1, 2, and -3 were extracted on 10/13/92, and analyzed using EPA method 8015 modified on 10/15/92. Samples -1, -2, and -3 were all flagged X2 to note the presence of compounds that fall across multiple product ranges. The percent recoveries for surrogates fell outside the quality control limits due to sample dilution prior to analysis required due to high matrix interferences. All other quality control parameters fell within acceptance ranges.

TOTAL PETROLEUM HYDROCARBONS-

Samples -1, -2, and -3 were extracted on 10/7/92, and analyzed using EPA method 418.1 modified for soil on 10/7/92. The percent recovery on the matrix spike and matrix spike duplicate analysis was outside quality control ranges due to dilution of the sample prior to analysis. All other quality control parameters were within acceptance limits.

All samples were dry weight corrected.

No blank correction was used.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: Burlington Environmental,
Engineering

Date: November 2, 1992

Report On: Analysis of Soil

Lab No.: 27555

Page 1 of 12

IDENTIFICATION:

Samples Received on 10-05-92

Project: 624878 Pier 91

ANALYSIS:

Lab No. 27555-1

Client ID: CP-118-2-4

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 10-13-92

Date Analyzed: 10-23-92

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
108-95-2	Phenol	ND	11,000	
111-44-4	bis(2-Chloroethyl) ether	ND	11,000	
95-57-8	2-Chlorophenol	ND	11,000	
541-73-1	1,3-Dichlorobenzene	ND	11,000	
106-46-7	1,4-Dichlorobenzene	ND	11,000	
100-51-6	Benzyl Alcohol	ND	22,000	
95-50-1	1,2-Dichlorobenzene	ND	11,000	
95-48-7	2-Methylphenol	ND	11,000	
39638-32-9	bis(2-Chloroisopropyl)ether	ND	11,000	
106-44-5	4-Methylphenol	ND	11,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	11,000	
67-72-1	Hexachloroethane	ND	11,000	
98-95-3	Nitrobenzene	ND	11,000	
78-59-1	Isophorone	ND	11,000	
88-75-5	2-Nitrophenol	ND	11,000	
105-67-9	2,4-Dimethylphenol	ND	11,000	
65-85-0	Benzoic Acid	ND	55,000	
111-91-1	bis(2-Chloroethoxy)methane	ND	11,000	
120-83-2	2,4-Dichlorophenol	ND	11,000	
120-82-1	1,2,4-Trichlorobenzene	ND	11,000	
91-20-3	Naphthalene	4,400	11,000	J
106-47-8	4-Chloroaniline	ND	22,000	
87-68-3	Hexachlorobutadiene	ND	11,000	
59-50-7	4-Chloro-3-methylphenol	ND	22,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 2 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-1

Client ID: CP-118-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
91-57-6	2-Methylnaphthalene	72,000	11,000	
77-47-4	Hexachlorocyclopentadiene	ND	11,000	
88-06-2	2,4,6-Trichlorophenol	ND	11,000	
95-95-4	2,4,5-Trichlorophenol	ND	11,000	
91-58-7	2-Chloronaphthalene	ND	11,000	
88-74-4	2-Nitroaniline	ND	55,000	
131-11-3	Dimethyl phthalate	ND	11,000	
208-96-8	Acenaphthylene	ND	11,000	
606-20-2	2,6-Dinitrotoluene	ND	11,000	
99-09-2	3-Nitroaniline	ND	55,000	
83-32-9	Acenaphthene	4,300	11,000	J
51-28-5	2,4-Dinitrophenol	ND	55,000	
100-02-7	4-Nitrophenol	ND	55,000	
132-64-9	Dibenzofuran	3,700	11,000	J
121-14-2	2,4-Dinitrotoluene	ND	11,000	
84-66-2	Diethylphthalate	ND	11,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	11,000	
86-73-7	Fluorene	7,200	11,000	J
100-01-6	4-Nitroaniline	ND	55,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	55,000	
86-30-6	N-Nitrosodiphenylamine	ND	11,000	
101-55-3	4-Bromophenyl phenyl ether	ND	11,000	
118-74-1	Hexachlorobenzene	ND	11,000	
87-86-5	Pentachlorophenol	ND	55,000	
85-01-8	Phenanthrene	11,000	11,000	
120-12-7	Anthracene	2,300	11,000	J
84-74-2	Di-n-butylphthalate	3,800	11,000	J

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 3 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-1

Client ID: CP-118-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
206-44-0	Fluoranthene	1,000	11,000	J
129-00-0	Pyrene	3,800	11,000	J
85-68-7	Butyl benzyl phthalate	3,100	11,000	J
91-94-1	3,3'-Dichlorobenzidine	ND	22,000	
56-55-3	Benzo(a)anthracene	3,600	11,000	J
218-01-9	Chrysene	3,300	11,000	J
117-81-7	bis(2-ethylhexyl)phthalate	3,900	11,000	J
117-84-0	Di-n-octyl phthalate	ND	11,000	
205-99-2	Benzo(b)fluoranthene	ND	11,000	
207-08-9	Benzo(k)fluoranthene	ND	11,000	
50-32-8	Benzo(a)pyrene	ND	11,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	11,000	
53-70-3	Dibenz(a,h)anthracene	ND	11,000	
191-24-2	Benzo(g,h,i)perylene	ND	11,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	84	35 - 114	23 - 120
2-Fluorobiphenyl	71	43 - 116	30 - 115
p-Terphenyl-d ₁₄	60	33 - 141	18 - 137
Phenol-d ₆	79	10 - 94	24 - 113
2-Fluorophenol	79	21 - 100	25 - 121
2,4,6-Tribromophenol	34	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 4 of 12
Lab No. 27555
November 2, 1992

Lab No. 27555-1

Client ID: CP-118-2-4

TPH Per EPA Method 418.1
Date Extracted: 10-7-92
Date Analyzed: 10-7-92

Total Petroleum Hydrocarbons, mg/kg	22,000
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TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 10-13-92
Date Analyzed: 10-15-92

Total Petroleum Fuel Hydrocarbons, mg/kg	18,000	X2
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TPH as Aged Gasoline, Diesel, Heavy Oil

<u>SURROGATE RECOVERY, %</u>	
1-chlorooctane	X8
o-terphenyl	X8

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 5 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-2

Client ID: CP-118-6-8

Semivolatile Organics Per EPA SW-846 Method 8270

Date Extracted: 10-13-92

Date Analyzed: 10-23-92

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
108-95-2	Phenol	ND	11,000	
111-44-4	bis(2-Chloroethyl) ether	ND	11,000	
95-57-8	2-Chlorophenol	ND	11,000	
541-73-1	1,3-Dichlorobenzene	ND	11,000	
106-46-7	1,4-Dichlorobenzene	ND	11,000	
100-51-6	Benzyl Alcohol	ND	22,000	
95-50-1	1,2-Dichlorobenzene	ND	11,000	
95-48-7	2-Methylphenol	ND	11,000	
39638-32-9	bis(2-Chloroisopropyl)ether	ND	11,000	
106-44-5	4-Methylphenol	ND	11,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	11,000	
67-72-1	Hexachloroethane	ND	11,000	
98-95-3	Nitrobenzene	ND	11,000	
78-59-1	Isophorone	ND	11,000	
88-75-5	2-Nitrophenol	ND	11,000	
105-67-9	2,4-Dimethylphenol	ND	11,000	
65-85-0	Benzoic Acid	ND	55,000	
111-91-1	bis(2-Chloroethoxy)methane	ND	11,000	
120-83-2	2,4-Dichlorophenol	ND	11,000	
120-82-1	1,2,4-Trichlorobenzene	ND	11,000	
91-20-3	Naphthalene	ND	11,000	
106-47-8	4-Chloroaniline	ND	22,000	
87-68-3	Hexachlorobutadiene	ND	11,000	
59-50-7	4-Chloro-3-methylphenol	ND	22,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 6 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-2

Client ID: CP-118-6-8

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
91-57-6	2-Methylnaphthalene	38,000	11,000	
77-47-4	Hexachlorocyclopentadiene	ND	11,000	
88-06-2	2,4,6-Trichlorophenol	ND	11,000	
95-95-4	2,4,5-Trichlorophenol	ND	11,000	
91-58-7	2-Chloronaphthalene	ND	11,000	
88-74-4	2-Nitroaniline	ND	55,000	
131-11-3	Dimethyl phthalate	ND	11,000	
208-96-8	Acenaphthylene	ND	11,000	
606-20-2	2,6-Dinitrotoluene	ND	11,000	
99-09-2	3-Nitroaniline	ND	55,000	
83-32-9	Acenaphthene	2,300	11,000	J
51-28-5	2,4-Dinitrophenol	ND	55,000	
100-02-7	4-Nitrophenol	ND	55,000	
132-64-9	Dibenzofuran	2,400	11,000	J
121-14-2	2,4-Dinitrotoluene	ND	11,000	
84-66-2	Diethylphthalate	ND	11,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	11,000	
86-73-7	Fluorene	7,600	11,000	J
100-01-6	4-Nitroaniline	ND	55,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	55,000	
86-30-6	N-Nitrosodiphenylamine	ND	11,000	
101-55-3	4-Bromophenyl phenyl ether	ND	11,000	
118-74-1	Hexachlorobenzene	ND	11,000	
87-86-5	Pentachlorophenol	ND	55,000	
85-01-8	Phenanthrene	9,800	11,000	J
120-12-7	Anthracene	ND	11,000	
84-74-2	Di-n-butylphthalate	4,200	11,000	J

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 7 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-2

Client ID: CP-118-6-8

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
206-44-0	Fluoranthene	ND	11,000	
129-00-0	Pyrene	3,000	11,000	J
85-68-7	Butyl benzyl phthalate	3,000	11,000	J
91-94-1	3,3'-Dichlorobenzidine	ND	22,000	
56-55-3	Benzo(a)anthracene	ND	11,000	
218-01-9	Chrysene	ND	11,000	
117-81-7	bis(2-ethylhexyl)phthalate	2,800	11,000	J
117-84-0	Di-n-octyl phthalate	ND	11,000	
205-99-2	Benzo(b)fluoranthene	ND	11,000	
207-08-9	Benzo(k)fluoranthene	ND	11,000	
50-32-8	Benzo(a)pyrene	ND	11,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	11,000	
53-70-3	Dibenz(a,h)anthracene	ND	11,000	
191-24-2	Benzo(g,h,i)perylene	ND	11,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	83	35 - 114	23 - 120
2-Fluorobiphenyl	80	43 - 116	30 - 115
p-Terphenyl-d ₁₄	74	33 - 141	18 - 137
Phenol-d ₆	92	10 - 94	24 - 113
2-Fluorophenol	78	21 - 100	25 - 121
2,4,6-Tribromophenol	71	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 8 of 12
Lab No. 27555
November 2, 1992

Lab No. 27555-2

Client ID: CP-118-6-8

TPH Per EPA Method 418.1
Date Extracted: 10-7-92
Date Analyzed: 10-7-92

Total Petroleum
Hydrocarbons, mg/kg 18,000

TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 10-13-92
Date Analyzed: 10-15-92

Total Petroleum
Fuel Hydrocarbons, mg/kg 32,000 X2

TPH as Aged Gasoline, Diesel, Heavy Oil

SURROGATE RECOVERY, %

1-chlorooctane X8
o-terphenyl X8

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 9 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-3

Client ID: CP-116-2-4

Semivolatile Organics Per EPA SW-846 Method 8270
 Date Extracted: 10-13-92
 Date Analyzed: 10-23-92

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
108-95-2	Phenol	ND	10,000	
111-44-4	bis(2-Chloroethyl) ether	ND	10,000	
95-57-8	2-Chlorophenol	ND	10,000	
541-73-1	1,3-Dichlorobenzene	ND	10,000	
106-46-7	1,4-Dichlorobenzene	ND	10,000	
100-51-6	Benzyl Alcohol	ND	20,000	
95-50-1	1,2-Dichlorobenzene	ND	10,000	
95-48-7	2-Methylphenol	ND	10,000	
39638-32-9	bis(2-Chloroisopropyl) ether	ND	10,000	
106-44-5	4-Methylphenol	ND	10,000	
621-64-7	N-Nitroso-Di-N-propylamine	ND	10,000	
67-72-1	Hexachloroethane	ND	10,000	
98-95-3	Nitrobenzene	ND	10,000	
78-59-1	Isophorone	ND	10,000	
88-75-5	2-Nitrophenol	ND	10,000	
105-67-9	2,4-Dimethylphenol	ND	10,000	
65-85-0	Benzoic Acid	ND	50,000	
111-91-1	bis(2-Chloroethoxy)methane	ND	10,000	
120-83-2	2,4-Dichlorophenol	ND	10,000	
120-82-1	1,2,4-Trichlorobenzene	ND	10,000	
91-20-3	Naphthalene	1,600	10,000	J
106-47-8	4-Chloroaniline	ND	20,000	
87-68-3	Hexachlorobutadiene	ND	10,000	
59-50-7	4-Chloro-3-methylphenol	ND	20,000	

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 10 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-3

Client ID: CP-116-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
91-57-6	2-Methylnaphthalene	4,700	10,000	J
77-47-4	Hexachlorocyclopentadiene	ND	10,000	
88-06-2	2,4,6-Trichlorophenol	ND	10,000	
95-95-4	2,4,5-Trichlorophenol	ND	10,000	
91-58-7	2-Chloronaphthalene	ND	10,000	
88-74-4	2-Nitroaniline	ND	50,000	
131-11-3	Dimethyl phthalate	ND	10,000	
208-96-8	Acenaphthylene	ND	10,000	
606-20-2	2,6-Dinitrotoluene	ND	10,000	
99-09-2	3-Nitroaniline	ND	50,000	
83-32-9	Acenaphthene	1,300	10,000	J
51-28-5	2,4-Dinitrophenol	ND	50,000	
100-02-7	4-Nitrophenol	ND	50,000	
132-64-9	Dibenzofuran	800	10,000	J
121-14-2	2,4-Dinitrotoluene	ND	10,000	
84-66-2	Diethylphthalate	ND	10,000	
7005-72-3	4-Chlorophenyl phenyl ether	ND	10,000	
86-73-7	Fluorene	ND	10,000	
100-01-6	4-Nitroaniline	ND	50,000	
534-52-1	4,6-Dinitro-2-methylphenol	ND	50,000	
86-30-6	N-Nitrosodiphenylamine	ND	10,000	
101-55-3	4-Bromophenyl phenyl ether	ND	10,000	
118-74-1	Hexachlorobenzene	ND	10,000	
87-86-5	Pentachlorophenol	ND	50,000	
85-01-8	Phenanthrene	2,200	10,000	J
120-12-7	Anthracene	1,000	10,000	J
84-74-2	Di-n-butylphthalate	4,000	10,000	J

ND - Not Detected

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
 Project: 624878
 Page 11 of 12
 Lab No. 27555
 November 2, 1992

Lab No. 27555-3

Client ID: CP-116-2-4

EPA Method 8270 Continued

CAS No.	Compounds	Concentration ug/kg	PQL	FLAGS
206-44-0	Fluoranthene	1,000	10,000	J
129-00-0	Pyrene	3,000	10,000	J
85-68-7	Butyl benzyl phthalate	2,800	10,000	J
91-94-1	3,3'-Dichlorobenzidine	ND	20,000	
56-55-3	Benzo(a)anthracene	ND	10,000	
218-01-9	Chrysene	2,800	10,000	J
117-81-7	bis(2-ethylhexyl)phthalate	4,000	10,000	J
117-84-0	Di-n-octyl phthalate	ND	10,000	
205-99-2	Benzo(b)fluoranthene	ND	10,000	
207-08-9	Benzo(k)fluoranthene	ND	10,000	
50-32-8	Benzo(a)pyrene	ND	10,000	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10,000	
53-70-3	Dibenz(a,h)anthracene	ND	10,000	
191-24-2	Benzo(g,h,i)perylene	ND	10,000	

ND - Not Detected

PQL - Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

Semi-Volatile Surrogates

Surrogate Compound	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d ₅	101	35 - 114	23 - 120
2-Fluorobiphenyl	80	43 - 116	30 - 115
p-Terphenyl-d ₁₄	65	33 - 141	18 - 137
Phenol-d ₆	82	10 - 94	24 - 113
2-Fluorophenol	82	21 - 100	25 - 121
2,4,6-Tribromophenol	92	10 - 123	19 - 122

Continued

SOUND ANALYTICAL SERVICES, INC.

Burlington Environmental, Engineering
Project: 624878
Page 12 of 12
Lab No. 27555
November 2, 1992

Lab No. 27555-3

Client ID: CP-116-2-4

TPH Per EPA Method 418.1
Date Extracted: 10-7-92
Date Analyzed: 10-7-92

Total Petroleum
Hydrocarbons, mg/kg 11,000


TPH Per EPA SW-846 Modified Method 8015
Date Extracted: 10-13-92
Date Analyzed: 10-15-92

Total Petroleum
Fuel Hydrocarbons, mg/kg 9,300 X2, E

TPH as Aged Gasoline, Diesel, Heavy Oil

SURROGATE RECOVERY, %
1-chlorooctane X8
o-terphenyl X8

SOUND ANALYTICAL SERVICES



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SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 1 of 3

Client: Burlington Environmental, Engineering
Lab No: 27555qc3
Units: ug/kg
Date: November 2, 1992
Blank No: P2346

METHOD BLANK

Compound	Blank Value	PQL	Flags
Phenol	ND	330	J
bis(2-Chloroethyl) ether	ND	330	
2-Chlorophenol	ND	330	
1,3-Dichlorobenzene	ND	330	
1,4-Dichlorobenzene	ND	330	
Benzyl Alcohol	ND	660	
1,2-Dichlorobenzene	ND	330	
2-Methylphenol	ND	330	
bis(2-Chloroisopropyl) ether	ND	330	
4-Methylphenol	ND	330	
N-Nitroso-Di-N-propylamine	ND	330	
Hexachloroethane	ND	330	
Nitrobenzene	ND	330	
Isophorone	ND	330	
2-Nitrophenol	ND	330	
2,4-Dimethylphenol	ND	330	
Benzoic Acid	ND	1,650	
bis(2-Chloroethoxy)methane	ND	330	
2,4-Dichlorophenol	ND	330	
1,2,4-Trichlorobenzene	ND	330	
Naphthalene	42	330	
4-Chloroaniline	ND	660	
Hexachlorobutadiene	ND	330	
4-Chloro-3-methylphenol	ND	660	
2-Methylnaphthalene	ND	330	
Hexachlorocyclopentadiene	ND	330	
2,4,6-Trichlorophenol	ND	330	
2,4,5-Trichlorophenol	ND	330	
2-Chloronaphthalene	ND	330	
2-Nitroaniline	ND	1,650	
Dimethyl phthalate	ND	330	
Acenaphthylene	ND	330	

Continued

SOUND ANALYTICAL SERVICES, INC.

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 2 of 3

Client: Burlington Environmental, Engineering
 Lab No: 27555qc3
 Units: ug/kg
 Date: November 2, 1992
 Blank No: P2346

METHOD BLANK

Compound	Blank Value	PQL	Flags
3-Nitroaniline	ND	1,650	
Acenaphthene	ND	330	
2,4-Dinitrophenol	ND	1,650	
4-Nitrophenol	ND	1,650	
Dibenzofuran	ND	330	
2,4-Dinitrotoluene	ND	330	
2,4-Dinitrotoluene	ND	330	
2,6-Dinitrotoluene	ND	330	
Diethylphthalate	ND	330	
4-Chlorophenyl phenyl ether	ND	330	
Fluorene	ND	330	
4-Nitroaniline	ND	1,650	
4,6-Dinitro-2-methylphenol	ND	1,650	
N-Nitrosodiphenylamine	ND	330	
4-Bromophenyl phenyl ether	ND	330	
Hexachlorobenzene	ND	330	
Pentachlorophenol	ND	1,650	
Phenanthrene	ND	330	
Anthracene	ND	330	
Di-n-butylphthalate	300	330	J
Fluoranthene	ND	330	
Pyrene	ND	330	
Butyl benzyl phthalate	100	330	J
3,3'-Dichlorobenzidine	ND	660	
Benzo(a)anthracene	ND	330	
bis(2-ethylhexyl)phthalate	90	330	J
Chrysene	ND	330	
Di-n-octyl phthalate	ND	330	
Benzo(b)fluoranthene	ND	330	
Benzo(k)fluoranthene	ND	330	
Benzo(a)pyrene	ND	330	
Indeno(1,2,3-cd)pyrene	ND	330	
Dibenz(a,h)anthracene	ND	330	
Benzo(g,h,i)perylene	ND	330	

Continued.

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 3 of 3

Client: Burlington Environmental, Engineering
Lab No: 27555qc3
Units: ug/kg
Date: November 2, 1992
Blank No: P2346

ND = Not Detected.

PQL = Practical Quantitation Limit - These are the quantitation limits for this sample. This number is based on sample size, matrix and dilution required.

SEMIVOLATILE SURROGATES

Surrogate	Percent Recovery	Control Limits	
		Water	Soil
Nitrobenzene - d5	29	35 - 114	23 - 120
2-Fluorobiphenyl	63	43 - 116	30 - 115
p-Terphenyl-d14	60	33 - 141	18 - 137
Phenol-d6	61	10 - 94	24 - 113
2-Fluorophenol	45	21 - 100	25 - 121
2,4,6-TBP	60	10 - 123	19 - 122

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

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QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 1 of 3

Client: Burlington Environmental, Engineering
Lab No: 27555qc4
Matrix: Soil
Units: ug/kg
Date: November 2, 1992
Dup No: 27555-1

DUPLICATE

Compound	Sample (S)	Duplicate (D)	RPD	FLAGS
Phenol	ND	ND	0.0	
bis(2-Chloroethyl) ether	ND	ND	0.0	
2-Chlorophenol	ND	ND	0.0	
1,3-Dichlorobenzene	ND	ND	0.0	
1,4-Dichlorobenzene	ND	ND	0.0	
Benzyl Alcohol	ND	ND	0.0	
1,2-Dichlorobenzene	ND	ND	0.0	
2-Methylphenol	ND	ND	0.0	
bis(2-Chloroisopropyl)ether	ND	ND	0.0	
4-Methylphenol	ND	ND	0.0	
N-Nitroso-Di-N-propylamine	ND	ND	0.0	
Hexachloroethane	ND	ND	0.0	
Nitrobenzene	ND	ND	0.0	
Isophorone	ND	ND	0.0	
2-Nitrophenol	ND	ND	0.0	
2,4-Dimethylphenol	ND	ND	0.0	
Benzoic Acid	ND	ND	0.0	
bis(2-Chloroethoxy)methane	ND	ND	0.0	
2,4-Dichlorophenol	ND	ND	0.0	
1,2,4-Trichlorobenzene	ND	ND	0.0	
Naphthalene	4,400	3,500	23.0	J
4-Chloroaniline	ND	ND	0.0	
Hexachlorobutadiene	ND	ND	0.0	
4-Chloro-3-methylphenol	ND	ND	0.0	
2-Methylnaphthalene	72,000	74,000	2.7	
Hexachlorocyclopentadiene	ND	ND	0.0	
2,4,6-Trichlorophenol	ND	ND	0.0	
2,4,5-Trichlorophenol	ND	ND	0.0	
2-Chloronaphthalene	ND	ND	0.0	
2-Nitroaniline	ND	ND	0.0	
Dimethyl phthalate	ND	ND	0.0	

Continued

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 2 of 3

Client: Burlington Environmental, Engineering
 Lab No: 27555qc4
 Matrix: Soil
 Units: ug/kg
 Date: November 2, 1992
 Dup No: 27555-1

DUPLICATE				
Compound	Sample (S)	Duplicate (D)	RPD	FLAGS
Acenaphthylene	ND	ND	0.0	
3-Nitroaniline	ND	ND	0.0	
Acenaphthene	4,300	4,100	4.8	J
2,4-Dinitrophenol	ND	ND	0.0	
4-Nitrophenol	ND	ND	0.0	
Dibenzofuran	3,700	3,800	2.7	J
2,4-Dinitrotoluene	ND	ND	0.0	
2,6-Dinitrotoluene	ND	ND	0.0	
Diethylphthalate	ND	ND	0.0	
4-Chlorophenyl phenyl ether	ND	ND	0.0	
Fluorene	7,200	7,500	4.1	J
4-Nitroaniline	ND	ND	0.0	
4,6-Dinitro-2-methylphenol	ND	ND	0.0	
N-Nitrosodiphenylamine	ND	ND	0.0	
4-Bromophenyl phenyl ether	ND	ND	0.0	
Hexachlorobenzene	ND	ND	0.0	
Pentachlorophenol	ND	ND	0.0	
Phenanthrene	11,000	14,000	24.0	
Anthracene	2,300	2,000	1.4	J
Di-n-butylphthalate	3,800	6,000	45.0	J, X4a
Fluoranthene	1,000	1,100	9.5	J
Pyrene	3,800	4,000	5.1	J
Butyl benzyl phthalate	3,100	3,000	3.3	J
3,3'-Dichlorobenzidine	ND	ND	0.0	
Benzo(a)anthracene	3,600	ND	200	X4a
bis(2-ethylhexyl)phthalate	3,900	3,700	27.0	J
Chrysene	3,300	3,300	0.0	J
Di-n-octyl phthalate	700	1,800	88	J, X4a
Benzo(b)fluoranthene	ND	ND	0.0	
Benzo(k)fluoranthene	ND	ND	0.0	
Benzo(a)pyrene	ND	ND	0.0	
Indeno(1,2,3-cd)pyrene	ND	ND	0.0	
Dibenz(a,h)anthracene	ND	ND	0.0	
Benzo(g,h,i)perylene	ND	ND	0.0	

Continued

SOUND ANALYTICAL SERVICES, INC.

QUALITY CONTROL REPORT

SEMIVOLATILE ORGANICS PER EPA SW-846 METHOD 8270

Page 3 of 3

Client: Burlington Environmental, Engineering
Lab No: 27555qc4
Matrix: Soil
Units: ug/kg
Date: November 2, 1992
Dup No: 27555-1

DUPLICATE

ND = Not Detected

RPD = Relative Percent Difference
= $[(S - D) / ((S + D) / 2)] \times 100$

SEMIVOLATILE SURROGATES

Surrogate	Sample	Duplicate	Control Limits	
			Water	Soil
Nitrobenzene - d5	84	123	35 - 114	23 - 120
2-Fluorobiphenyl	71	90	43 - 116	30 - 115
p-Terphenyl-d14	60	79	33 - 141	18 - 137
Phenol-d6	79	92	10 - 94	24 - 113
2-Fluorophenol	79	94	21 - 100	25 - 121
2,4,6-TBP	34	39	10 - 123	19 - 122

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

Client Name: Burlington Environmental, Engineering
Lab No: 27555qc5
Date: November 3, 1992

SEMI-VOLATILE ORGANICS

COMPOUND	SPIKE (ug/kg)	SAMPLE RESULT	CONC MS	% REC	CONC MSD	% REC	RPD
1,2,4-Trichlorobenzene	105,966	ND	77,000	72	82,000	78	7.0
Acenaphthene	105,966	4,300	86,100	81	96,000	91	11.0
2,4 Dinitrotoluene	105,966	ND	137,000	129	145,000	136	5.0
Pyrene	105,966	3,800	67,000	63	71,000	67	6.0
N-nitrosodi-n-Propylamine	105,966	ND	85,200	80	86,000	81	1.0
1,4-Dichlorobenzene	105,966	ND	75,000	71	78,000	74	4.0
Pentachlorophenol	105,966	ND	23,000	22	42,000	40	58.0
Phenol	105,966	ND	77,000	72	84,000	79	9.0
2-Chlorophenol	105,966	ND	44,900	42	58,000	55	26.0
4-Chloro-3-Methylphenol	105,966	ND	74,000	70	87,000	82	16.0
4-Nitrophenol	105,966	ND	54,000	50	60,000	56	11.0

RPD = Relative Percent Difference

% REC = Percent Recovery

*QC Limits:

RPD

% RECOVERY

1,2,4-Trichlorobenzene	23	38-107
Acenaphthene	19	31-137
2,4 Dinitrotoluene	47	28-89
Pyrene	36	35-142
N-nitrosodi-n-Propylamine	38	41-126
1,4-Dichlorobenzene	27	28-104
Pentachlorophenol	47	17-109
Phenol	35	26-90
2-Chlorophenol	50	25-102
4-Chloro-3-Methylphenol	33	26-103
4-Nitrophenol	50	11-114

* These are advisory limits only.

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

Total Petroleum Fuel Hydrocarbons by Method 8015

Client: Burlington Environmental, Engineering
Lab No: 27555qc2
Matrix: Soil
Units: mg/kg
Date: November 2, 1992

DUPLICATE

Dup. No. 27555-1

Parameter	Sample(S)	Duplicate(D)	RPD	FLAGS
Total Petroleum Fuel Hydrocarbons	18,000	21,000	15.0	X2
<u>SURROGATE RECOVERY%</u> 1-chlorooctane o-terphenyl				X8 X8

RPD = relative percent difference
$$= [(S - D) / ((S + D) / 2)] \times 100$$

BLANK SPIKE RECOVERY

BS No. 038F0101.D

Parameter	Spike Added	Spike Recovered	%R
Total Petroleum Fuel Hydrocarbons	405	438	108

%R = Percent Recovery
$$= [(MS - SR) / SA] \times 100$$

METHOD BLANK

Blank No. 016F0101.D

Parameter	Blank Value
Total Petroleum Fuel Hydrocarbons	< 10
<u>SURROGATE RECOVERY%</u> 1-chlorooctane o-terphenyl	75 65

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

QUALITY CONTROL REPORT

TPH by Method 418.1

Client: Burlington Environmental, Engineering
Lab No: 27555qc1
Matrix: Soil
Units: mg/kg
Date: November 2, 1992

DUPLICATE

Dup No. 27555-1

Parameter	Sample(S)	Duplicate(D)	RPD
Total Petroleum Hydrocarbons	22,000	20,000	9.5

RPD = Relative Percent Difference
$$= [(S - D) / ((S + D) / 2)] \times 100$$

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

MSD No. 27555-1

Parameter	Sample Result (SR)	Spiked Sample Result (MS)	Spike Added (SA)	%R	Spike Dup Result (MSD)	RPD
Total Petroleum Hydrocarbons	22,000	23,000	1,100	X5	23,000	0.0

%R = Percent Recovery
$$= [(MS - SR) / SA] \times 100$$

RPD = Relative Percent Difference
$$= [(MS - MSD) / ((MS + MSD) / 2)] \times 100$$

METHOD BLANK

Parameter	Blank Value
Total Petroleum Hydrocarbons	< 10

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206) 922-2310 - FAX (206) 922-5047

DATA QUALIFIER FLAGS

- ND: Indicates that the analyte was analyzed for but was not detected. The associated numerical value is the practical quantitation limit, corrected for sample dilution.
- J: The analyte was analyzed for and positively identified, but the associated numerical value is an estimated quantity.
- C: The identification of this analyte was confirmed by GC/MS.
- B: This analyte was also detected in the associated method blank. There is a possibility of blank contamination.
- E: The concentration of this analyte exceeded the instrument calibration range.
- D: The reported result for this analyte is calculated based on a secondary dilution factor.
- A: This TIC is a suspected aldol-condensation product.
- M: Quantitation Limits are elevated due to matrix interferences.
- S: The calibration quality control criteria for this compound were not met. The reported concentration should be considered an estimated quantity.
- X1: Contaminant does not appear to be "typical" product. Elution pattern suggests it may be _____.
- X2: Contaminant does not appear to be "typical" product. Further testing is suggested for identification.
- X3: Identification and quantification of peaks was complicated by matrix interference; GC/MS confirmation is recommended.
- X4: RPD for duplicates outside QC limits. Sample was re-analyzed with similar results. Sample matrix is nonhomogeneous.
- X4a: RPD for duplicates outside QC limits due to analyte concentration near the method practical quantitation limit/detection limit.
- X5: Matrix spike was diluted out during analysis.
- X6: Recovery of matrix spike outside QC limits. Sample was re-analyzed with similar results.
- X7: Recovery of matrix spike outside QC limits. Matrix interference is indicated by blank spike recovery data.
- X8: Surrogate was diluted out during analysis.
- X9: Surrogate recovery outside QC limits due to matrix composition.
- X10: Surrogate recovery outside QC limits due to high contaminant levels.

RECEIVED

NOV 25 1992

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Technical Services

CHAIN OF CUSTODY



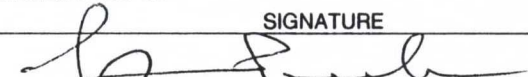
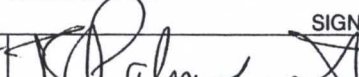
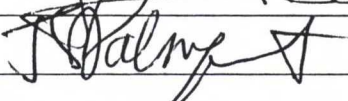
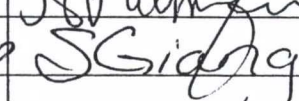
CHAIN-OF-CUSTODY RECORD

C.O.C. SERIAL NO. 6074

[illegible]

RELINQUISHED BY

RECEIVED BY

SIGNATURE		DATE	TIME	SIGNATURE		DATE	TIME
		10-5	10:15			10-5	10:15 AM
		10-5	12:25 PM			10/5/92	12:25 PM
SHIPPING NOTES				LAB NOTES			